LT Environmental, Inc.
848 East Second Avenue
Durango, Colorado 81301
970.385.1096

November 9, 2018

Mr. Cory Smith
New Mexico Oil Conservation Division
1000 Rio Brazos Road
Aztec, New Mexico 87410

pENV0000 3RP 364

RE: Remediation System Quarterly Operation Report
Remediation Permit Number 3RP-364
Florance Gas Com J16A
Harvest Four Corners, LLC
San Juan County, New Mexico

3qtr 2018

Dear Mr. Smith:

The following report provides a quarterly summary of remediation system operation and monitoring (O&M) completed during the third quarter of 2018 at the Florance Gas Com J16A, Remediation Permit Number 3RP-364, oil and gas pipeline release location in San Juan County, New Mexico. The activity included in this report is for the period from July 7, 2018 through September 27, 2018. The report was prepared by LT Environmental, Inc. (LTE) on behalf of Harvest Four Corners, LLC (Harvest). Harvest assumed operation of the assets associated with the location from Williams Four Corners LLC (Williams) on October 1, 2018 and is continuing site remediation activities.

The report is provided in accordance with the conditions of approval from the New Mexico Oil Conservation Division (NMOCD) pertaining to the multi-phase extraction (MPE) remediation system described in the Remedial Assessment Report. Per the requirements, this report includes the following:

- A summary of remediation activities during the quarter;
- The system run time summary (90% run time required);
- The petroleum mass removal and fluid product recovery from the remediation system;
- Amount of liquid captured from the concrete trap/secondary seep tank; and
- Quarterly gas sample analysis results.

The groundwater monitoring results for the project will be provided in a separate report published on an annual basis.

NMOCD
DEC 12 2018
DISTRICT III

108

SYSTEM DESCRIPTION

The remediation system at the site includes a MPE system which uses high vacuum blowers to initiate vacuum in remediation wells connected to the blowers via subsurface conduits. The extracted air, petroleum vapors, and fluid enter a fluid/air separation tank. Air and petroleum vapors are passed through two extraction blowers and emitted out exhaust stacks. Separated fluid which includes light non-aqueous phase liquids and (LNAPL) and groundwater is pumped to an above ground storage tank for storage and offsite disposal. Operation of the remediation wells is cycled through four zones, with four to six remediation wells per zone. The system layout is depicted on Figure 1. A report summarizing remediation system operation for the first quarter of system operations (second quarter 2018) was provided to the NMOCD by Williams.

REMEDIATION SYSTEM OPERATION AND MONITORING

Routine weekly system operations have been conducted from system startup through the third quarter 2018. The results of these efforts are summarized in tables attached to this report including the following information through the final weekly site visit for the quarter conducted on September 27, 2018.

- The run time for the remediation system listed in Table 1 indicates an average run time for the third quarter of 93.5 percent (%). Temporary system operation interruptions occurred due to routine maintenance requirements, groundwater sampling activities, and temporary power interruption.
- Air/vapor samples from the MPE system inlet piping were collected following cycling of different extraction well zones, typically on a weekly basis. Ten samples were collected during this reporting period. Samples were collected using a vacuum pump to fill a Tedlar bag from the system inlet manifold and submitted for analysis for volatile organic compounds (VOCs) by EPA Method 8260B, carbon dioxide, and oxygen, to Hall Environmental Analysis Laboratory. The analytical results from startup through the third quarter 2018 are summarized in Table 2. Copies of the laboratory analytical reports for the vapor samples are provided in Attachment 1.
- The calculated mass removal rate based on field and analytical results is provided in Table 3. Results indicate that since startup, the system has removed 1,325 pounds (lbs) of VOCs. In the third quarter 2018, the calculated mass removal rate based on VOC data varied from 0.2 lbs per day to 42.8 lbs per day.
- Fluid recovery efforts are summarized in Table 4. Recovered fluid is extracted, separated and transferred to an above ground storage tank. During the third quarter 2018 total fluid recovery was measured using a flow metering device and LNAPL recovery was calculated based on periodic measurement of recovered fluid in the storage tank. Since startup of

Smith, Cory, EMNRD

From: Smith, Cory, EMNRD
Sent: Wednesday, January 9, 2019 10:09 AM
To: Monica Sandoval
Cc: Brooke Herb; 'Daniel Burns'; 'Kijun Hong'
Subject: RE: Florance GC J16A - Quarterly Report

All,

I have reviewed the SVE report there is no additional conditions required at this time.

Please keep operating under all previous conditions of approval. I will scan the report into 3RP-364 asap.

Thanks,

Cory Smith
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 115
cory.smith@state.nm.us

From: Daniel Burns <dburns@ltenv.com>
Sent: Tuesday, December 11, 2018 12:53 PM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Cc: Monica Sandoval <msandoval@harvestmidstream.com>; Brooke Herb <bherb@ltenv.com>
Subject: [EXT] Florance GC J16A - Quarterly Report

Cory,

Here is the 3rd quarterly report for the Florance GC J16A. A hard copy has been mailed as well.

Thank you,

Danny Burns
Project Geologist

LT Environmental, Inc.
Advancing Opportunity

LT Environmental, Inc.
Four Corners Office
848 East 2nd Avenue
Durango, Colorado 80003
(701) 570-4727 mobile
(970) 385-1096 office

the system through September 27, 2018, 47,872 gallons of groundwater has been recovered.

- Table 5 provides a summary of operational data for the SVE system including measurements of applied vacuum and measured flow rates for the individual recovery well lines. The specific lines operational and period of operation are indicated in this Table.

CONCRETE TRAP/SECONDARY SEEP MONITORING

During the third quarter, the collection sump associated with the seep areas and collection piping was examined for fluid recovery during scheduled O&M visits. No discharge was observed from the seep collection piping and no fluid accumulated in the concrete sump during the third quarter 2018, and no fluid samples were collected.

PLAN FOR NEXT QUARTER OF OPERATION

System Operation

Operation of the remediation system will continue with the goal of optimizing vapor and liquid recovery. Remediation system operation indicates a decline in VOC concentrations for each line sampled, as expected with this type of system. Based on these data, the frequency for air emission VOC sampling will be reduced in the fourth quarter 2018. Sampling will continue to comply with the NMOCD Conditions of Approval.

During the fourth quarter of 2018, the following will be completed:

- Weekly system operation monitoring including cycling operations between the four zones;
- During weekly site visits temporary operation of wells where LNAPL has been observed will occur for approximately one hour, then the zone of operation will be changed.
- Periodic fluid elevation monitoring in selected remediation wells to evaluate the presence or absence of LNAPL;
- Air extraction sample collection for VOCs analysis during cycling of operations for the first month of operation (October 2018);
- Air extraction sample collection will be reduced to a monthly basis for the subsequent operating period (November and December 2018) and samples will be collected while Zone 4 is operational, which has exhibited the highest VOC concentrations;
- One air extraction sample per quarter will be analyzed for oxygen and carbon dioxide; and

- When weekly samples are not collected, a photoionization detector will be used to measure MPE air/vapor exhaust concentrations.

Groundwater Monitoring

A groundwater monitoring event will be conducted on a quarterly basis and periodic fluid elevation measurements will be obtained throughout the quarter. The results of the fluid elevation measurements are reviewed, and system operational adjustments will be made based on these data. Groundwater monitoring results will be provided in an annual report.

Reporting

A quarterly system operation report will be prepared and submitted to NMOCD within 30 days following the end of the fourth quarter which will include:

- A summary of remediation activities during the quarter;
- The system run time summary;
- The petroleum mass removal and fluid product recovery from the remediation system;
- Amount of liquid captured from the concrete trap/secondary seep tank; and
- Quarterly gas sample analysis results.

Please contact LTE at 970-385-1096 or Monica Sandoval (Harvest) at 505-632-4625 if you have any questions or concerns.

Sincerely,

LT ENVIRONMENTAL, INC.

Daniel Burns
Project Geologist

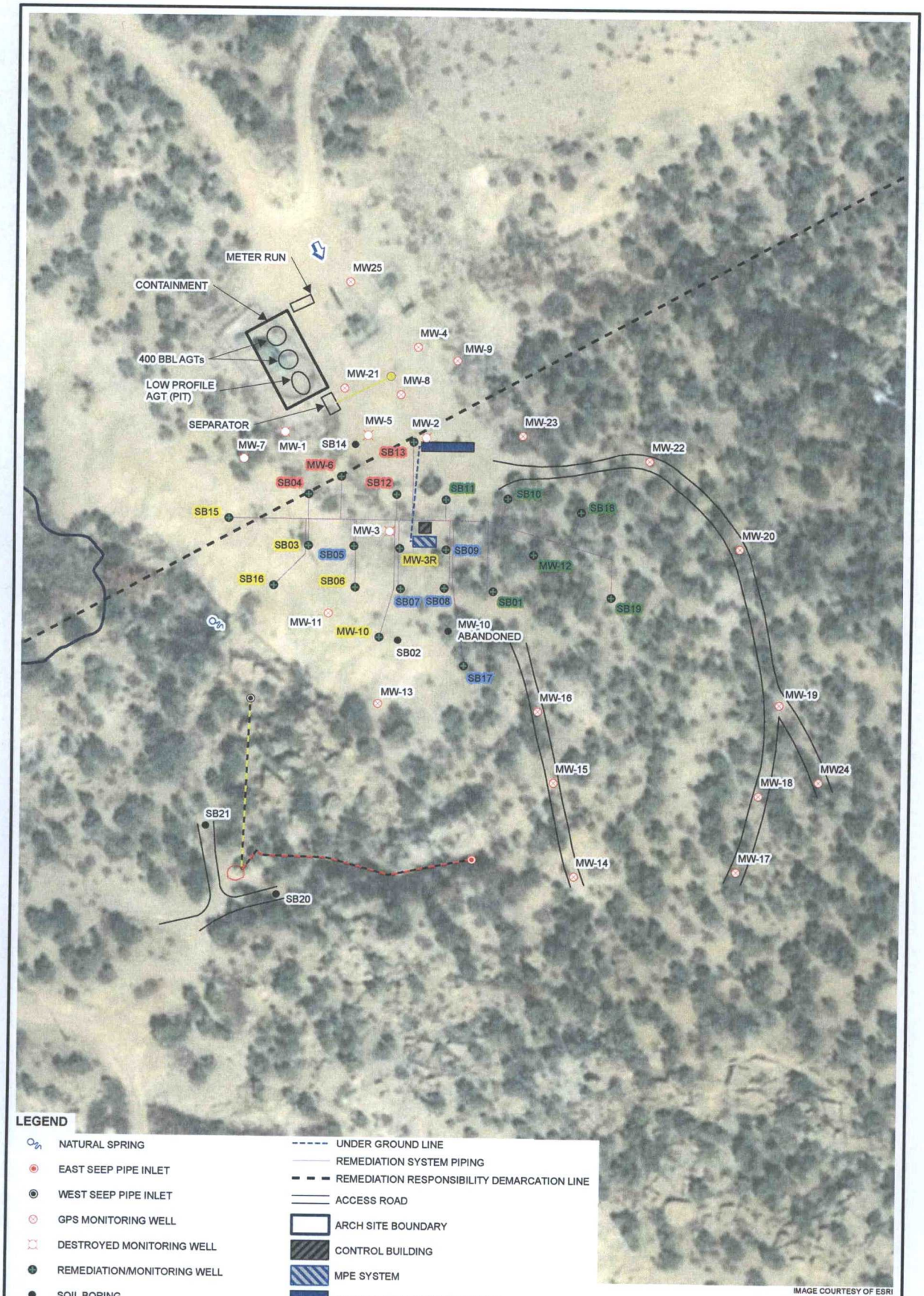
Chris Shephard
Chief Engineer

cc: Monica Sandoval, Harvest Four Corners, LLC

Attachments:

Figure 1	Remediation System Well Layout
Table 1	Remediation System Operational Run Time
Table 2	Vapor Analytical Results
Table 3	Mass Removal
Table 4	Fluid Recovery
Table 5	System Operations 3rd Quarter 2018
Attachment 1	Laboratory Analytical Reports

FIGURES



LEGEND

- NATURAL SPRING
- EAST SEEP PIPE INLET
- WEST SEEP PIPE INLET
- GPS MONITORING WELL
- DESTROYED MONITORING WELL
- REMEDIATION/MONITORING WELL
- SOIL BORING
- WELLHEAD
- ESTIMATED GROUNDWATER FLOW DIRECTION
- CONDENSATE SUMP
- FLOWLINE
- EAST SEEP PIPE
- WEST SEEP PIPE
- UNDER GROUND LINE
- REMEDIATION SYSTEM PIPING
- REMEDIATION RESPONSIBILITY DEMARCATION LINE
- ACCESS ROAD
- ARCH SITE BOUNDARY
- CONTROL BUILDING
- MPE SYSTEM
- FLUID RECOVERY/STORAGE TANK

RED TEXT INDICATES ZONE 01
GREEN TEXT INDICATES ZONE 02
YELLOW TEXT INDICATES ZONE 03
BLUE TEXT INDICATES ZONE 04

FIGURE 1
REMEDIATION SYSTEM LAYOUT
FLORANCE GCJ #16A
SAN JUAN COUNTY, NEW MEXICO

HARVEST MIDSTREAM COMPANY

P:\Harvest Midstream\GIS\MXD\09031\8001_FLORANCE GCJ 16A\09031\8001_FIG01_REM_SYS_LAYOUT_2018.mxd

TABLES

TABLE 1

REMEDIATION SYSTEMS OPERATIONAL RUN-TIME - THIRD QUARTER 2018

FLORANCE GC J16A

SAN JUAN COUNTY, NEW MEXICO

HARVEST MIDSTREAM COMPANY

Date/time	Hour meter reading	Cummulative Run Time (%)	Rolling Quarterly Run Time (%)	Notes
5/1/18 0:00	0			
5/4/18 9:00	42	START UP		
5/17/18 12:45	356	99.4	99.4	
5/18/18 13:25	381	99.6	99.6	
5/18/18 19:00	386	99.4	99.4	
5/22/18 10:00	473	99.5	99.5	
5/25/18 9:00	544	99.6	99.6	
5/25/18 12:00	547	99.6	99.6	Blower oil changed
6/1/18 14:30	717	99.6	99.6	
6/8/18 12:40	882	99.6	99.6	
6/15/18 10:15	1,047	99.6	99.6	
6/20/18 11:52	1,159	98.8	98.8	Shut down for sampling
6/22/18 16:06	1,159	98.8	98.8	Online after sampling
6/29/18 11:10	1,312	98.2	98.2	
7/6/18 11:25	1,481	98.4	98.4	
7/9/18 21:23	1,561	95.2	99.4	Multiple power surges/outages corrupt PLC
7/11/18 11:22	1,561	92.9	84.3	PLC connection restored; reprogrammed
7/13/18 13:00	1,608	93.0	86.0	Power surges/restored
7/20/18 14:50	1,775	93.5	90.5	Routine maintenance
7/25/18 15:00	1,890	93.6	91.5	
8/2/18 10:30	2,082	94.4	94.2	Multiple power faults on 7/26/18
8/8/18 12:35	2,228	94.7	95.1	
8/16/18 15:00	2,398	94.2	93.7	System O&M
8/23/18 17:15	2,591	95.4	96.3	
8/30/18 15:00	2,753	95.5	96.5	
9/7/18 15:00	2,944	95.8	96.8	
9/15/18 19:36	3,145	96.2	97.4	System shut down for sampling
9/19/18 10:52	3,145	93.6	93.0	Online after sampling
9/21/18 9:04	3,191	93.7	93.2	System shut down for maintenance
9/21/18 12:00	3,191	93.6	93.0	Blower oil changed
9/27/2018 10:20	3,334	93.9	93.5	

Notes:

% - percent

TABLE 2
EXTRACTED AIR VOC DATA - THIRD QUARTER 2018
FLORANCE GC J16A
SAN JUAN COUNTY, NEW MEXICO
HARVEST MIDSTREAM COMPANY

Collection Date:	5/2/2018	5/25/2018	6/6/2018	6/8/2018	6/15/2018	6/29/2018	7/6/2018	7/13/2018	7/25/2018	8/2/2018	8/9/2018 *	8/16/2018	8/23/2018	8/30/2018	9/7/2018	9/19/2018	9/27/2018
Collection Time:	13:00	14:30	13:30	16:48	15:45	14:35	15:00	17:15	15:00	14:30	13:27	15:00	17:15	15:00	15:20	15:30	15:30
Zone	1	2	3	4	1	2	3	3	4	1	2	3	4	1	2	3	4
Benzene (ug/L)	110	86	27	150	36	47	11	33	120	21	0.67	31	28	5.4	28	4.1	17
Toluene (ug/L)	110	220	67	670	160	83	41	110	420	74	3	210	170	15	66	42	71
Ethylbenzene (ug/L)	1.5	22	5.2	54	14	14	3.9	9.7	34	6.4	0.41	12	12	2	4.9	1.4	4.8
1,2,4-trimethylbenzene (ug/L)	<1	16	3	47	6.9	---	<2.5	5	30	3.9	0.26	6.0	8.9	ND	2.1	<0.5	2.2
1,3,5-trimethylbenzene (ug/L)	<1	14	2.8	36	6.4	---	<2.5	5.1	30	4.3	0.30	6.0	8.3	ND	2.3	0.55	2.3
Chloromethane (ug/L)	<1	<1	<2.5	3.7	<5	---	<2.5	<2.5	<2.5	<2.5	<0.20	<2.0	<2.0	ND	<2.0	<0.5	<0.5
Isoproplybenzene (ug/L)	<1	3.8	<2.5	9.1	<5	---	<2.5	<2.5	5.3	<2.5	<0.20	<2.0	2	ND	<2.0	<0.5	0.66
n-Proplybenzene (ug/L)	<1	3.2	<2.5	8	<5	---	<2.5	<2.5	5.8	<2.5	<0.20	<2.0	1.8	ND	<2.0	<0.5	<0.5
Xylenes (ug/L)	9.8	250	64	660	140	120	36	120	530	70	4.5	180	160	22	55	24	62
Total VOCs (ug/L):	231.3	615	169	1637.8	363.3	264	91.9	282.8	1175.1	179.6	9.14	445	391	44.4	158.3	72.05	159.96
PID Reading (ppmv)				1803	820	1500	916		1598		88.3	1364	1669	813	490.7		

Note:
ug/L - micrograms per liter
* sample not representative due to malfunction of equipment

TABLE 3
MASS REMOVAL VAPOR PHASE - THIRD QUARTER 2018
FLORANCE GC J16A
SAN JUAN COUNTY, NEW MEXICO
HARVEST MIDSTREAM COMPANY

Date/time	Influent VOCs (mg/m3)	Zone Online (Start)	Air Flow Rate (scfm) pre-dilution	Time Period (hr:min:sec)	Time Period (min)	Mass Removed (lbs)	Gal Removed (@0.63892g/cm3)	Mass Removal Rate (lbs/day)	Mass Removal Rate (ton/yr)
5/1/18 0:00	-	4	0						
5/2/18 0:00	231	1	100	24:00:00	1440	2.1	0.4	2.1	0.4
5/25/18 14:30	615	2	259.5	566:30:00	33990	110.2	20.7	4.7	0.9
6/6/18 13:30	169	3*	189.2	287:00:00	17220	171.3	32.1	14.3	2.6
6/8/18 16:40	1,638	4	169.5	51:10:00	3070	6.1	1.1	2.9	0.5
6/15/18 15:45	363	1**	203.5	167:05:00	10025	173.4	32.5	24.9	4.5
6/29/18 14:35	264	2	259.5	334:50:00	20090	92.6	17.4	6.6	1.2
7/6/18 15:00	92	3	278	168:25:00	10105	43.1	8.1	6.1	1.1
7/13/18 13:00	283	3	120	166:00:00	9960	15.9	3.0	2.3	0.4
7/25/18 15:00	1,175	4	406	290:00:00	17400	36.8	6.9	3.0	0.6
8/2/18 10:30	113	1	312	187:30:00	11250	334.5	62.8	42.8	7.8
8/9/18 13:27	9	2	290	170:57:00	10257	22.6	4.2	3.2	0.6
8/16/18 15:00	445	3	494	169:33:00	10173	1.7	0.3	0.2	0.0
8/23/18 17:15	391	4	385	170:15:00	10215	140.0	26.3	19.7	3.6
8/30/18 15:00	44	1	180	165:45:00	9945	93.3	17.5	13.5	2.5
9/7/18 15:20	158	2	332	192:20:00	11540	5.7	1.1	0.7	0.1
9/19/18 15:15	72	3	360	287:55:00	17275	56.6	10.6	4.7	0.9
9/27/18 15:30	160	4	354	192:15:00	11535	18.6	3.5	2.3	0.4

Total Quantity of Hydrocarbon Removed	1,325 lbs	248.5 gal	5.9 bbls

Notes:

g/cm3 - gram per cubic centimeter
hr - hour
lbs - pound
lbs/day - pound per day
mg/m3 - miligram per cubic meter
min - minute
scfm - standard cubic foot per minute
sec - second
ton/yr - ton per year
yr - year
*Zone started and data collected 06/01/18; sample collected and transported but holiday schedule prevented it from arrived at lab within hold time.
**Groundwater sampling conducted; zone change, sampling, and data collection delayed a week

TABLE 4
FLUID RECOVERY - THIRD QUARTER 2018
FLORANCE GC J16A
SAN JUAN COUNTY, NEW MEXICO
HARVEST MIDSTREAM COMPANY

Date/time	Hour meter reading	Tank Height		Gallons in tank	Flow Meter Reading (gal)	Gallons Recovered this Period	Cumulative Volume Recovered (gal)	LNAPL Thickness (ft)	LNAPL Volume (gal)	Gallons Removed From Tank (Off-Site T&D)	Time Period (hr:min:sec)	Time Period (min)	Recovery Rate (gpm)		Notes
		(ft)	(in)										(gpm)	(gal/day)	
5/1/18 0:00	0	0	-	0											
5/4/18 9:00	42	1	5	1190		1,190	1,190	---	---		42:00:00	2520	0.47	680	
5/17/18 12:45	356	4	11	4130		2,940	4,130	---	---		315:45:00	18945	0.16	223	
5/18/18 13:25	381	5	2	4340		210	4,340	---	---		24:40:00	1480	0.14	204	
5/18/18 19:00	389	5	6	4620		280	4,620	---	---		5:35:00	335	0.84	1204	
5/25/18 9:00	544	14	7	12250		7,630	12,250	---	---		158:00:00	9480	0.80	1159	
5/25/18 17:00	551	7	3	6090			12,250	---	---	6720	8:00:00	480			2 loads removed
6/1/18 10:00	713	8	6	7140		1,050	13,300	---	---		161:00:00	9660	0.11	157	
6/1/18 14:30	717	1	2	980			13,300	---	---	6720	4:30:00	270			2 loads removed
6/8/18 12:40	882	3	11	3290		2,310	15,610	---	---		166:10:00	9970	0.23	334	
6/11/18 12:00							15,610	---	---	3360					1 load removed
6/15/18 10:15	1,047	0	7	490		490	16,100	---	---	2100	94:15:00	5655	0.09	125	1 load removed
6/22/18 15:00	1,159	5	4	4480		3,990	20,090	---	---		172:45:00	10365	0.38	554	
6/29/18 11:10	1,312	10	9	9030		4,550	24,640	0.03	25.38		164:10:00	9850	0.46	665	
7/6/18 11:25	1,481	11	10	9940		910	25,550	0.02	16.92		168:15:00	10095	0.09	130	
7/13/18 13:00	1,608	9	11	8330		1,750	27,300	0.01	8.46	3360	169:35:00	10175	0.17	248	1 load removed
7/20/18 14:50	1,775	6	5	8457	127	127	27,427	0.02	16.92		169:50:00	10190	0.01	18	1 load removed
7/25/18 10:20	1,890	8	11	7490	2,144	2,017	29,444	0.02	16.92		115:30:00	6930	0.29	419	
8/2/18 10:30	2,082	3	2	2660	3,570	1,426	30,870		0.00		192:10:00	11530	0.12	178	2 loads removed
8/9/18 11:50	2,251	8	2	6860	6,963	3,393	34,263	0.06	50.76		169:20:00	10160	0.33	481	
8/16/18 15:00	2,398	9	2	7700	8,321	1,358	35,621	0.01	8.46		171:10:00	10270	0.13	190	
8/23/18 12:40	2,586	9	9	8190	11,698	3,377	38,998	0.01	8.46		165:40:00	9940	0.34	489	
8/30/18 11:15	2,753	11	3	9450	12,650	953	39,950	0.02	16.92		166:35:00	9995	0.10	137	
9/7/18 10:50	2,944	16	11	14210	17,132	4,482	44,432	0.03	25.38		191:35:00	11495	0.39	561	
9/19/18 12:10	3,145	7	4	6160	18,670	1,538	45,970	0.03	25.38		289:20:00	17360	0.09	128	loads removed
9/27/18 14:00	3,334	7	11	6650	20,572	1,902	47,872	0.01	8.46		193:50:00	11630	0.16	235	

Total Quantity of Groundwater Removed:	47,872 Gal
	1,140 bbl

Notes:
ft - feet
gal - gallon
gal/day - gallon per day
gpm - gallon per minute
hr - hour
in - inch
min - minute
sec - second

TABLE 5
MPE SYSTEM OPERATIONS - THIRD QUARTER 2018
FLORANCE GC J16A
SAN JUAN COUNTY, NEW MEXICO
HARVEST MIDSTREAM COMPANY

Well ID		Unit	7/6/2018	7/6/2018	7/13/2018	7/20/2018	7/25/2018	7/25/2018	8/2/2018	8/2/2018	8/8/2018	8/9/2018	8/16/2018	8/16/2018	8/23/2018	8/23/2018	8/30/2018	8/30/2018	9/7/2018	9/7/2018	9/19/2018	9/19/2018	9/27/2018	9/27/2018
Active Zone			2	3	3	3	3	4	4	1	1	2	2	3	3	4	4	1	1	2	2	3	3	4
Flow Temperature		°F	65.0	65.0																				
MW-06	WH Vac (Online)	inHg								16.0	16.0							17.5	16.5					
Zone 1	WH Vac (Offline)	inH2O	0.0	0.0	0.3		0.1	0.0	0.1			0.0	0.0	0.0	0.8	0.0	0.0			0.0	2.3	3.1	3.0	0.0
	Mani Vac	inHg								18.0	17.0							17.0	17.5					
	PID	ppm								4.6	5.1							916.5	1,006					
	Flow	scfm								42.0	0.0							20.0	32.0					
SB-04	WH Vac (Online)	inHg								16.5	14.5							17.5	13.5					
Zone 1	WH Vac (Offline)	inH2O	0.0	5.2	1.3		4.4	3.4	3.2			0.8	0.6	6.2	4.6	3.4	3.2			0.4	0.2	5.5	5.4	3.5
	Mani Vac	inHg								18.0	18.0							17.0	17.5					
	PID	ppm								6.6	0.0							463.7	399.0					
	Flow	scfm								60.0	64.0							56.0	60.0					
SB-11	WH Vac (Online)	inHg								18.0	15.5		Moved											
Zone 1	WH Vac (Offline)	inH2O	13.2	6.7	1.0		2.0	16.3	16.0			11.6	to											
	Mani Vac	inHg								17.0	17.0		Zone 2											
	PID	ppm								7.8	106.0													
	Flow	scfm								72.0	70.0													
SB-12	WH Vac (Online)	inHg								18.5	14.0							17.0	13.0					
Zone 1	WH Vac (Offline)	inH2O	2.9	3.0	1.4		1.5	8.8	8.8			2.4	4.4	1.1	2.3	5.3	5.4		5.0	4.3	4.1	1.6	2.3	5.8
	Mani Vac	inHg								17.5	17.8							17.0	17.0					
	PID	ppm								5.4	0.3							1,033	327.5					
	Flow	scfm								72.0	66.0							64.0	72.0					
SB-13	WH Vac (Online)	inHg								16.5	16.0							15.5	15.5					
Zone 1	WH Vac (Offline)	inH2O	5.4	3.8	1.2		0.0	7.3	7.4			4.8	7.0	5.6	2.3	6.5	6.6			7.1	9.3	5.2	5.8	2.1
	Mani Vac	inHg								17.0	16.0							15.5	16.0					
	PID	ppm								5.6	6.6							370.5	336.7					
	Flow	scfm								66.0	40.0							40.0	44.0					
MW-12	WH Vac (Online)	inHg	10.0									15.0	11.5							12.0	12.0			
Zone 2	WH Vac (Offline)	inH2O		7.0	1.0		1.0	13.2	13.3	8.2	4.4			12.2	2.7	12.3	12.3	7.8	7.9			10.1	10.2	12.1
	Mani Vac	inHg	16.8									16.5	15.3							14.0	15.5			
	PID	ppm	764.0									0.0	835.0							1,006	309.4			
	Flow	scfm	64.0									70.0	58.0							64.0	54.0			
SB-01	WH Vac (Online)	inHg	17.0									17.5	14.5							15.0	15.0			
Zone 2	WH Vac (Offline)	inH2O		7.5	2.3		2.4	29.1	29.3	9.6	0.8			14.7	6.1	27.7	27.4	9.5	9.5			11.9	10.8	26.0
	Mani Vac	inHg	17.0									16.5	15.5							14.0	15.5			
	PID	ppm	1,246									15.8	905.0							1,624	608.3			
	Flow	scfm	78.0									72.0	70.0							58.0	68.0			

TABLE 5
MPE SYSTEM OPERATIONS - THIRD QUARTER 2018
FLORANCE GC J16A
SAN JUAN COUNTY, NEW MEXICO
HARVEST MIDSTREAM COMPANY

Well ID		Unit	7/6/2018	7/6/2018	7/13/2018	7/20/2018	7/25/2018	7/25/2018	8/2/2018	8/2/2018	8/8/2018	8/9/2018	8/16/2018	8/16/2018	8/23/2018	8/23/2018	8/30/2018	8/30/2018	9/7/2018	9/7/2018	9/19/2018	9/19/2018	9/27/2018	9/27/2018
Active Zone			2	3	3	3	3	4	4	1	1	2	2	3	3	4	4	1	1	2	2	3	3	4
Flow Temperature		°F	65.0	65.0																				
SB-10	WH Vac (Online)	inHg	13.0									14.5	11.5							12.0	12.5			
Zone 2	WH Vac (Offline)	inH2O		8.0	1.5		0.8	12.6	12.6	10.8	4.5			9.8	2.5	11.9	12.1	10.6	10.3			9.4	10.0	11.4
	Mani Vac	inHg	17.0									16.5	15.5							14.5	15.5			
	PID	ppm	384.0									0.0	540.0							289.9	59.5			
	Flow	scfm	56.0									48.0	56.0							44.0	52.0			
SB-11	WH Vac (Online)	inHg											15.0							14.5	14.0			
Zone 2	WH Vac (Offline)	inH2O												9.1	5.3	16.3	16.3	24.7	25.0			9.8	9.3	15.4
	Mani Vac	inHg											15.0							14.0	15.0			
	PID	ppm											1,036							349.2	327.7			
	Flow	scfm											62.0							52.0	66.0			
SB-18	WH Vac (Online)	inHg	18.0									17.0	14.5							15.0	15.0			
Zone 2	WH Vac (Offline)	inH2O		0.3	0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0			1.2	1.0	0.0
	Mani Vac	inHg	17.5									17.0	16.0							15.0	16.0			
	PID	ppm	110.0									0.0	1,280							382.1	302.6			
	Flow	scfm										22.0	44.0							52.0	34.0			
SB-19	WH Vac (Online)	inHg	15.0									16.0	13.5							14.5	14.5			
Zone 2	WH Vac (Offline)	inH2O		0.0	0.0		0.0	0.3	0.1	0.0	0.2			3.8	0.0	2.0	2.1	0.0	0.0			9.3	9.4	0.4
	Mani Vac	inHg	16.8									16.5	15.0							14.0	15.5			
	PID	ppm	626.0									0.0	858.0							856.7	387.0			
	Flow	scfm	78.0									78.0	72.0							62.0	74.0			
MW-3R	WH Vac (Online)	inHg										included		14.5	13.5		Online					15.0	15.0	
Zone 3	WH Vac (Offline)	inH2O										with	11.8			14.5	in	11.2	10.8	11.5	15.4			
	Mani Vac	inHg										Zone 3		15.5	15.0		Zone 4					16.5	16.5	
	PID	ppm										43,328		2,164	2,832		Currently					1,445	762.0	
	Flow	scfm												100.0	80.0							100.0	58.0	
MW-10	WH Vac (Online)	inHg		26.0	53.4		21.0							15.5	15.0							12.0	5.0	
Zone 3	WH Vac (Offline)	inH2O	0.0					0.0	0.0	0.0	0.0	0.0	0.0			0.8	0.6	0.0	0.0	0.0	0.1			2.1
	Mani Vac	inHg		17.5	14.5	13.0	17.3							15.0	15.5							17.5	16.5	
	PID	ppm		30.4	1.8		369.0							247.0	511.0							651.0	28.6	
	Flow	scfm			0		0							60	60							26.0	28.0	
SB-03	WH Vac (Online)	inHg		19.0	8.9		16.0							17.5	13.5							16.0	14.5	
Zone 3	WH Vac (Offline)	inH2O	0.9					4.6	4.5	5.2	6.3	0.7	0.7			4.8	4.8	5.2	5.5	0.5	1.0			4.4
	Mani Vac	inHg		17.0	14.5	18.0	17.0							14.5	15.0							17.0	16.5	
	PID	ppm		1,317	1,425		1,215							687.0	1,588							256.0	338.4	
	Flow	scfm		52.0	0.0	36.0	58.0							48.0	50.0							72.0	48.0	
SB-06	WH Vac (Online)	inHg		17.5	13.5		14.5							15.5	13.5							15.0	14.5	
Zone 3	WH Vac (Offline)	inH2O	4.8					19.0	19.0	13.1	3.1	3.9	3.4			23.2	23.3	13.0	13.6	4.1	5.2			18.7
	Mani Vac	inHg		17.0	15.0	18.0	17.0							14.5	15.5							17.0	16.5	
	PID	ppm		157.0	1,366		1,327							339.0	1,509							231.0	816.0	
	Flow	scfm		78.0	60.0	54.0	80.0							64.0	50.0							68.0	50.0	

TABLE 5
MPE SYSTEM OPERATIONS - THIRD QUARTER 2018
FLORANCE GC J16A
SAN JUAN COUNTY, NEW MEXICO
HARVEST MIDSTREAM COMPANY

Well ID		Unit	7/6/2018	7/6/2018	7/13/2018	7/20/2018	7/25/2018	7/25/2018	8/2/2018	8/2/2018	8/8/2018	8/9/2018	8/16/2018	8/16/2018	8/23/2018	8/23/2018	8/30/2018	8/30/2018	9/7/2018	9/7/2018	9/19/2018	9/19/2018	9/27/2018	9/27/2018
Active Zone			2	3	3	3	3	4	4	1	1	2	2	3	3	4	4	1	1	2	2	3	3	4
Flow Temperature		°F	65.0	65.0																				
SB-15	WH Vac (Online)	inHg		14.5	4.6		14.0							14.0	11.0							3.5	11.5	
Zone 3	WH Vac (Offline)	inH2O	0.0					0.5	0.5	1.2	1.4	0.2	0.2			0.5	0.5	1.1	1.4	0.1	0.3			0.7
	Mani Vac	inHg		17.0	14.5	18.0	17.0							14.5	15.0							3.0	16.5	
	PID	ppm		73.3	107.0		23.8							59.0	228.0							79.8	36.7	
	Flow	scfm		70.0	0.0	50.0	64.0							52.0	60.0							10.0	64.0	
SB-16	WH Vac (Online)	inHg		19.0	13.5		16.0							17.5	13.0							11.0	15.0	
Zone 3	WH Vac (Offline)	inH2O	0.2					1.3	1.2	1.1	0.8	0.2	0.2			2.8	2.9	1.3	1.5	0.0	0.1			3.3
	Mani Vac	inHg		17.5	15.0	17.5	17.5							15.0	15.5							17.0	17.0	
	PID	ppm		254.0	375.0		55.8							37.5	384.0							16.5	66.8	
	Flow	scfm		78.0	60.0	80.0	82.0							70.0	68.0							84.0	72.0	
MW-3R	WH Vac (Online)	inHg						13.8	3.5					14.5	13.5	14.5	15.0							15.0
Zone 4	WH Vac (Offline)	inH2O	13.4	7.4	4.5		4.6			11.2	9.0	10.9	11.8					11.2	11.1	12.0	15.4	ONLINE		
	Mani Vac	inHg						14.5	16.5					15.5	15.0	15.0	15.0					IN		15.0
	PID	ppm						1,808	671.0					247.0	2,832	2,386	2,912					ZONE 3		790.0
	Flow	scfm						80.0	80.0					100.0	80.0	54.0	52.0							48.0
SB-05	WH Vac (Online)	inHg						17.5	2.0							14.0	12.5							15.5
Zone 4	WH Vac (Offline)	inH2O	3.6	6.7	4.4		6.3			6.4	6.1	2.4	3.0	10.9	3.0			6.6	6.3	3.2	2.1	2.0	2.2	
	Mani Vac	inHg						14.5	16.0							14.5	14.5							15.0
	PID	ppm						1,998	475.0							1,636	3,203							137.0
	Flow	scfm						65.0	65.0							60.0	60.0							58.0
SB-07	WH Vac (Online)	inHg						16.0	13.5							13.5	12.0							15.0
Zone 4	WH Vac (Offline)	inH2O	10.6	9.2	5.5		6.5			47.6	4.5	8.8	6.8	16.6	6.8			49.2	45.1	6.6	11.1	13.4	13.6	
	Mani Vac	inHg						14.5	16.0							14.5	15.0							15.0
	PID	ppm						1,426	91.7							1,105	1,826							657.0
	Flow	scfm						75.0	68.0							72.0	58.0							60.0
SB-08	WH Vac (Online)	inHg						18.5	15.0							16.0	13.5							17.0
Zone 4	WH Vac (Offline)	inH2O	17.8	7.5	3.4		4.0			9.2	6.3	15.1	12.5	16.5	12.5			9.8	9.9	12.8	18.5	13.6	13.6	
	Mani Vac	inHg						15.0	17.0							15.0	15.0							15.6
	PID	ppm						1,130	16.3							1,104	1,208							65.9
	Flow	scfm						60.0	76.0							70.0	66.0							68.0
SB-09	WH Vac (Online)	inHg						15.5	14.0							14.0	14.5							14.5
Zone 4	WH Vac (Offline)	inH2O	17.7	8.9	3.0		3.5			15.3	11.9	15.2	18.1	15.2	18.1			16.0	16.4	18.3	22.1	14.9	15.3	
	Mani Vac	inHg						15.0	16.5							15.5	15.5							15.5
	PID	ppm						1,452	69.7							2,256	1,333							186.3
	Flow	scfm						70.0	80.0							75.0	72.0							54.0
SB-17	WH Vac (Online)	inHg						16.5	14.5							15.0	13.0							17.5
Zone 4	WH Vac (Offline)	inH2O	3.7	2.1	0.6		1.0			0.7	1.1	3.1	2.2	3.8	2.2			0.8	0.4	2.3	3.9	3.0	2.8	
	Mani Vac	inHg						15.0	16.5							15.0	15.0							15.0
	PID	ppm						376.0	23.8							413.0	1,654							30.4
	Flow	scfm						56.0	56.0							54.0	50.0							66.0

TABLE 5
MPE SYSTEM OPERATIONS - THIRD QUARTER 2018
FLORANCE GC J16A
SAN JUAN COUNTY, NEW MEXICO
HARVEST MIDSTREAM COMPANY

Well ID		Unit	7/6/2018	7/6/2018	7/13/2018	7/20/2018	7/25/2018	7/25/2018	8/2/2018	8/2/2018	8/8/2018	8/9/2018	8/16/2018	8/16/2018	8/23/2018	8/23/2018	8/30/2018	8/30/2018	9/7/2018	9/7/2018	9/19/2018	9/19/2018	9/27/2018	9/27/2018
Active Zone			2	3	3	3	3	4	4	1	1	2	2	3	3	4	4	1	1	2	2	3	3	4
Flow Temperature		°F	65.0	65.0																				
Well Field																								
	Flow	scfm	276	278	120	220	284	406	425	312	240	352	300	494	448	385	358	180	260	346	282	360	320	354
MS Inlet	Inlet Vac	in HG																						
(fka Total)	Pitot Vac	inH2O																						
***	Pitot Diff	inH2O																						
	Flow	scfm	260.0	259.0	0.0	0.0	0.0	0.0	0.0	0.0	260.0	259.5	259.0	260.0	260.0	260.0	260.0	260.0	259.5	260.0	259.5	259.5		
Dilution	Inlet Vac	in HG																						
Flow	Pitot Vac	inH2O																						
***	Pitot Diff	inH2O																						
	Flow	scfm																						
% Error Extracted Flow ***		%	6%	7%	100%	100%	100%	100%	100%	100%	-8%	26%	14%	47%	42%	32%	27%	-44%	0%	25%	8%	28%	100%	100%
Dilution Flow		scfm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Flow		scfm	276.0	278.0	120.0	220.0	284.0	406.0	425.0	312.0	240.0	352.0	300.0	494.0	448.0	385.0	358.0	180.0	260.0	346.0	282.0	360.0	320.0	354.0
% Dilution		%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
% Extracted Air		%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		

Notes:

in HG - inches of mercury

inH2O - inches of water

ppm - parts per million

scfm - standard cubic feet per minute

°F - degree Fahrenheit

% - percent

*** The flow sensor at the MS Inlet and for the dilution flow do not account for the density of the air or the water entrained, and are anticipated to read low.

ATTACHMENT 1: LABORATORY ANALYTICAL REPORTS

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 25, 2018

Danny Burns
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL: (505) 632-4442
FAX

RE: Florance GCJ 16A

OrderNo.: 1807A08

Dear Danny Burns:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/18/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1807A08**
Date Reported: **7/25/2018**

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1807A08-001 **Matrix:** AQUEOUS

Client Sample ID: MW-10
Collection Date: 7/13/2018 4:45:00 PM
Received Date: 7/18/2018 7:24:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **AG**	
Gasoline Range Organics (GRO)	21	5.0		mg/L	100	7/19/2018 1:48:01 PM	C52827
Surr: BFB	92.1	70-130		%Rec	100	7/19/2018 1:48:01 PM	C52827
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **TOM**	
Diesel Range Organics (DRO)	28	1.0		mg/L	1	7/23/2018 1:54:35 PM	39330
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/23/2018 1:54:35 PM	39330
Surr: DNOP	103	76.7-135		%Rec	1	7/23/2018 1:54:35 PM	39330
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **AG**	
Benzene	4900	100		µg/L	100	7/19/2018 1:48:01 PM	D52827
Toluene	1000	100		µg/L	100	7/19/2018 1:48:01 PM	D52827
Ethylbenzene	170	100		µg/L	100	7/19/2018 1:48:01 PM	D52827
Xylenes, Total	1300	150		µg/L	100	7/19/2018 1:48:01 PM	D52827
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	100	7/19/2018 1:48:01 PM	D52827
Surr: Toluene-d8	95.3	70-130		%Rec	100	7/19/2018 1:48:01 PM	D52827

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1807A08-002 **Matrix:** AIR

Client Sample ID: Zone 03 Influent
Collection Date: 7/13/2018 5:15:00 PM
Received Date: 7/18/2018 7:24:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	33	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Toluene	110	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Ethylbenzene	9.7	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,2,4-Trimethylbenzene	5.0	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,3,5-Trimethylbenzene	5.1	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,2-Dichloroethane (EDC)	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,2-Dibromoethane (EDB)	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Naphthalene	ND	5.0		µg/L	25	7/23/2018 11:12:33 AM	W52922
1-Methylnaphthalene	ND	10		µg/L	25	7/23/2018 11:12:33 AM	W52922
2-Methylnaphthalene	ND	10		µg/L	25	7/23/2018 11:12:33 AM	W52922
Acetone	ND	25		µg/L	25	7/23/2018 11:12:33 AM	W52922
Bromobenzene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Bromodichloromethane	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Bromoform	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Bromomethane	ND	5.0		µg/L	25	7/23/2018 11:12:33 AM	W52922
2-Butanone	ND	25		µg/L	25	7/23/2018 11:12:33 AM	W52922
Carbon disulfide	ND	25		µg/L	25	7/23/2018 11:12:33 AM	W52922
Carbon tetrachloride	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Chlorobenzene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Chloroethane	ND	5.0		µg/L	25	7/23/2018 11:12:33 AM	W52922
Chloroform	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Chloromethane	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
2-Chlorotoluene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
4-Chlorotoluene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
cis-1,2-DCE	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
cis-1,3-Dichloropropene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,2-Dibromo-3-chloropropane	ND	5.0		µg/L	25	7/23/2018 11:12:33 AM	W52922
Dibromochloromethane	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Dibromomethane	ND	5.0		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,2-Dichlorobenzene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,3-Dichlorobenzene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,4-Dichlorobenzene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Dichlorodifluoromethane	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,1-Dichloroethane	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,1-Dichloroethene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,2-Dichloropropane	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,3-Dichloropropane	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
2,2-Dichloropropane	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1807A08-002 **Matrix:** AIR

Client Sample ID: Zone 03 Influent
Collection Date: 7/13/2018 5:15:00 PM
Received Date: 7/18/2018 7:24:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Hexachlorobutadiene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
2-Hexanone	ND	25		µg/L	25	7/23/2018 11:12:33 AM	W52922
Isopropylbenzene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
4-Isopropyltoluene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
4-Methyl-2-pentanone	ND	25		µg/L	25	7/23/2018 11:12:33 AM	W52922
Methylene chloride	ND	7.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
n-Butylbenzene	ND	7.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
n-Propylbenzene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
sec-Butylbenzene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Styrene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
tert-Butylbenzene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,1,1,2-Tetrachloroethane	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,1,2,2-Tetrachloroethane	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Tetrachloroethene (PCE)	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
trans-1,2-DCE	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
trans-1,3-Dichloropropene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,2,3-Trichlorobenzene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,2,4-Trichlorobenzene	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,1,1-Trichloroethane	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,1,2-Trichloroethane	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Trichloroethene (TCE)	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Trichlorofluoromethane	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
1,2,3-Trichloropropane	ND	5.0		µg/L	25	7/23/2018 11:12:33 AM	W52922
Vinyl chloride	ND	2.5		µg/L	25	7/23/2018 11:12:33 AM	W52922
Xylenes, Total	120	3.8		µg/L	25	7/23/2018 11:12:33 AM	W52922
Surr: Dibromofluoromethane	102	70-130		%Rec	25	7/23/2018 11:12:33 AM	W52922
Surr: 1,2-Dichloroethane-d4	136	70-130	S	%Rec	25	7/23/2018 11:12:33 AM	W52922
Surr: Toluene-d8	115	70-130		%Rec	25	7/23/2018 11:12:33 AM	W52922
Surr: 4-Bromofluorobenzene	112	70-130		%Rec	25	7/23/2018 11:12:33 AM	W52922

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1807A08-002B; Zone 03 Influent
Location:
Lab ID: G18070431-001

Report Date: 07/25/18
Collection Date: 07/13/18 17:15
Date Received: 07/20/18
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	21.933	Mol %		GPA 2261	07/25/18 08:24 / djb
Nitrogen	77.654	Mol %		GPA 2261	07/25/18 08:24 / djb
Carbon Dioxide	0.322	Mol %		GPA 2261	07/25/18 08:24 / djb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	07/25/18 08:24 / djb
Methane	< 0.001	Mol %		GPA 2261	07/25/18 08:24 / djb
Ethane	< 0.001	Mol %		GPA 2261	07/25/18 08:24 / djb
Propane	< 0.001	Mol %		GPA 2261	07/25/18 08:24 / djb
Isobutane	< 0.001	Mol %		GPA 2261	07/25/18 08:24 / djb
n-Butane	< 0.001	Mol %		GPA 2261	07/25/18 08:24 / djb
Isopentane	0.001	Mol %		GPA 2261	07/25/18 08:24 / djb
n-Pentane	0.002	Mol %		GPA 2261	07/25/18 08:24 / djb
Hexanes plus	0.088	Mol %		GPA 2261	07/25/18 08:24 / djb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	07/25/18 08:24 / djb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	07/25/18 08:24 / djb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	07/25/18 08:24 / djb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	07/25/18 08:24 / djb
GPM Isopentane	0.0010	gal/MCF		GPA 2261	07/25/18 08:24 / djb
GPM n-Pentane	0.0010	gal/MCF		GPA 2261	07/25/18 08:24 / djb
GPM Hexanes plus	0.0380	gal/MCF		GPA 2261	07/25/18 08:24 / djb
GPM Pentanes plus	0.0400	gal/MCF		GPA 2261	07/25/18 08:24 / djb
GPM Total	0.0400	gal/MCF		GPA 2261	07/25/18 08:24 / djb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	07/25/18 08:24 / djb
Calculation Temperature Base	60	°F		GPA 2261	07/25/18 08:24 / djb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	07/25/18 08:24 / djb
Molecular Weight	29.00	unitless		GPA 2261	07/25/18 08:24 / djb
Pseudo-critical Pressure, psia	548	psia		GPA 2261	07/25/18 08:24 / djb
Pseudo-critical Temperature, deg R	241	deg R		GPA 2261	07/25/18 08:24 / djb
Specific Gravity (air=1.000)	1.004	unitless		GPA 2261	07/25/18 08:24 / djb
Gross BTU per cu ft @ std cond, dry	4.66	BTU/cu ft		GPA 2261	07/25/18 08:24 / djb
Gross BTU per cu ft @ std cond, wet	4.58	BTU/cu ft		GPA 2261	07/25/18 08:24 / djb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 07/25/18
Work Order: G18070431

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Analytical Run: R244767
Lab ID: ICV-1807250640	Initial Calibration Verification Standard								07/25/18 06:41
Oxygen	0.397	Mol %	0.001	83	75	110			
Nitrogen	5.030	Mol %	0.001	100	90	110			
Carbon Dioxide	4.920	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.128	Mol %	0.001	127	100	136			
Methane	73.047	Mol %	0.001	100	90	110			
Ethane	5.020	Mol %	0.001	101	90	110			
Propane	5.139	Mol %	0.001	101	90	110			
Isobutane	2.023	Mol %	0.001	100	90	110			
n-Butane	2.000	Mol %	0.001	99	90	110			
Isopentane	0.997	Mol %	0.001	100	90	110			
n-Pentane	0.991	Mol %	0.001	99	90	110			
Hexanes plus	0.308	Mol %	0.001	102	90	110			
Lab ID: CCV-1807250649	Continuing Calibration Verification Standard								07/25/18 06:49
Oxygen	0.589	Mol %	0.001	98	90	110			
Nitrogen	1.309	Mol %	0.001	93	85	110			
Carbon Dioxide	0.969	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.025	Mol %	0.001	100	70	130			
Methane	93.516	Mol %	0.001	100	90	110			
Ethane	1.025	Mol %	0.001	102	90	110			
Propane	1.010	Mol %	0.001	101	90	110			
Isobutane	0.507	Mol %	0.001	101	90	110			
n-Butane	0.494	Mol %	0.001	99	90	110			
Isopentane	0.202	Mol %	0.001	101	90	110			
n-Pentane	0.199	Mol %	0.001	99	90	110			
Hexanes plus	0.155	Mol %	0.001	102	90	110			
Lab ID: CCV-1807250843	Continuing Calibration Verification Standard								07/25/18 08:43
Oxygen	0.588	Mol %	0.001	98	90	110			
Nitrogen	1.306	Mol %	0.001	93	85	110			
Carbon Dioxide	0.970	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.026	Mol %	0.001	104	70	130			
Methane	93.528	Mol %	0.001	100	90	110			
Ethane	1.024	Mol %	0.001	102	90	110			
Propane	1.009	Mol %	0.001	101	90	110			
Isobutane	0.504	Mol %	0.001	101	90	110			
n-Butane	0.491	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.155	Mol %	0.001	102	90	110			
Method: GPA 2261									Batch: R244767

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 07/25/18
Work Order: G18070431

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Batch: R244767
Lab ID: G18070431-001ADUP	Sample Duplicate				Run: Varian GC_180725A			07/25/18 08:29	
Oxygen	21.932	Mol %	0.001				0.0	10	
Nitrogen	77.652	Mol %	0.001				0.0	10	
Carbon Dioxide	0.323	Mol %	0.001				0.3	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	0.001	Mol %	0.001				0.0	10	
n-Pentane	0.002	Mol %	0.001				0.0	10	
Hexanes plus	0.090	Mol %	0.001				2.2	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807A08**

25-Jul-18

Client: Williams Four Corners
Project: Florance GCJ 16A

Sample ID **LCS-39330**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **39330**	RunNo: **52903**
Prep Date: **7/20/2018**	Analysis Date: **7/23/2018**	SeqNo: **1738462** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.3	1.0	5.000	0	105	70	130			
Surr: DNOP	0.51		0.5000		102	76.7	135			

Sample ID **MB-39330**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **39330**	RunNo: **52903**
Prep Date: **7/20/2018**	Analysis Date: **7/23/2018**	SeqNo: **1738463** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.97		1.000		97.1	76.7	135			

Sample ID **1807A08-001BMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **MW-10**	Batch ID: **39330**	RunNo: **52903**
Prep Date: **7/20/2018**	Analysis Date: **7/23/2018**	SeqNo: **1738796** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	34	1.0	5.000	27.57	119	82.8	143			
Surr: DNOP	0.55		0.5000		110	76.7	135			

Sample ID **1807A08-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **MW-10**	Batch ID: **39330**	RunNo: **52903**
Prep Date: **7/20/2018**	Analysis Date: **7/23/2018**	SeqNo: **1738797** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	32	1.0	5.000	27.57	91.2	82.8	143	4.26	20	
Surr: DNOP	0.59		0.5000		119	76.7	135	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807A08**

25-Jul-18

Client: Williams Four Corners

Project: Florance GCJ 16A

Sample ID **100ng btex lcs** SampType: **LCS4** TestCode: **EPA Method 8260: Volatiles Short List**

Client ID: **BatchQC** Batch ID: **D52827** RunNo: **52827**

Prep Date: Analysis Date: **7/19/2018** SeqNo: **1736514** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	105	80	120			
Toluene	22	1.0	20.00	0	108	80	120			
Ethylbenzene	22	1.0	20.00	0	108	80	120			
Xylenes, Total	61	1.5	60.00	0	102	80	120			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.2	70	130			
Surr: Toluene-d8	9.7		10.00		96.7	70	130			

Sample ID **1807a08-001ams** SampType: **MS4** TestCode: **EPA Method 8260: Volatiles Short List**

Client ID: **MW-10** Batch ID: **D52827** RunNo: **52827**

Prep Date: Analysis Date: **7/19/2018** SeqNo: **1736517** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	6700	100	2000	4943	90.2	80	120			
Toluene	3100	100	2000	1016	103	80	120			
Ethylbenzene	2200	100	2000	171.9	100	80	120			
Xylenes, Total	7500	150	6000	1255	104	80	120			
Surr: 4-Bromofluorobenzene	920		1000		91.6	70	130			
Surr: Toluene-d8	940		1000		94.5	70	130			

Sample ID **1807a08-001amsd** SampType: **MSD4** TestCode: **EPA Method 8260: Volatiles Short List**

Client ID: **MW-10** Batch ID: **D52827** RunNo: **52827**

Prep Date: Analysis Date: **7/19/2018** SeqNo: **1736518** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	6600	100	2000	4943	84.2	80	120	1.79	20	
Toluene	3100	100	2000	1016	103	80	120	0.402	20	
Ethylbenzene	2200	100	2000	171.9	102	80	120	1.53	20	
Xylenes, Total	7500	150	6000	1255	104	80	120	0.155	20	
Surr: 4-Bromofluorobenzene	940		1000		93.6	70	130	0	0	
Surr: Toluene-d8	950		1000		95.3	70	130	0	0	

Sample ID **rb** SampType: **MBLK** TestCode: **EPA Method 8260: Volatiles Short List**

Client ID: **PBW** Batch ID: **D52827** RunNo: **52827**

Prep Date: Analysis Date: **7/19/2018** SeqNo: **1736519** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807A08**

25-Jul-18

Client: Williams Four Corners
Project: Florance GCJ 16A

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **D52827**	RunNo: **52827**
Prep Date:	Analysis Date: **7/19/2018**	SeqNo: **1736519** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0		10.00		0	70	130			S
Surr: 4-Bromofluorobenzene	12		10.00		116	70	130			
Surr: Dibromofluoromethane	0		10.00		0	70	130			S
Surr: Toluene-d8	9.8		10.00		98.1	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807A08**

25-Jul-18

Client: Williams Four Corners

Project: Florance GCJ 16A

Sample ID **1807a08-001ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **MW-10**	Batch ID: **C52827**	RunNo: **52827**
Prep Date:	Analysis Date: **7/19/2018**	SeqNo: **1736481** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	71	5.0	50.00	21.26	99.7	63.4	130			
Surr: BFB	850		1000		84.6	70	130			

Sample ID **1807a08-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **MW-10**	Batch ID: **C52827**	RunNo: **52827**
Prep Date:	Analysis Date: **7/19/2018**	SeqNo: **1736482** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	65	5.0	50.00	21.26	88.4	63.4	130	8.26	20	
Surr: BFB	870		1000		87.4	70	130	0	0	

Sample ID **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **C52827**	RunNo: **52827**
Prep Date:	Analysis Date: **7/19/2018**	SeqNo: **1736485** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.52	0.050	0.5000	0	104	70	130			
Surr: BFB	9.0		10.00		89.5	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **C52827**	RunNo: **52827**
Prep Date:	Analysis Date: **7/19/2018**	SeqNo: **1736486** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	10		10.00		103	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WILLIAMS FOUR CORN Work Order Number: 1807A08 RcptNo: 1

Received By: Isaiah Ortiz 7/18/2018 7:24:00 AM IO

Completed By: Ashley Gallegos 7/18/2018 6:31:05 PM AG

Reviewed By: JAB 07/19/18 Labeled by: MW 7/19/18

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 7/19/18 (<2 or >12 unless noted)
Adjusted? MW
Checked by: _____

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Yes			

Chain-of-Custody Record

Client: Williams Four Corners

Mailing Address: 17755 Arroyo Dr Bloomfield, NM

Phone #:

email or Fax#: aaron.galer@williams.com

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____
☐ EDD (Type) PDF

Turn-Around Time:
☑ Standard ☐ Rush _____

Project Name: Florance GCJ 16A

Project #:

Project Manager: LTE-Danny Burns

Sampler: D. Burns

On Ice: ☑ Yes ☐ No

Sample Temperature: 2.4

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1807408	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA) Full list	8270 (Semi-VOA)	Carbon Dioxide	Oxygen			Air Bubbles (Y or N)
7-13-18	1645	AQ	MW-10	6 VOAs 1-125mL	HCl, cool	-001	X		X													
7-13-18	17:15	Air	Zone 03 Influent	2-Tedlar	cool	-002										X		X	X			

Date:	Time:	Relinquished by:	Received by:	Date	Time
7-17-18	1500		Christen Wall	7/17/18	1506
7/17/18	1804	Christen Walker			

Date:	Time:	Relinquished by:	Received by:	Date	Time
			IOD courier	7/18/18	7:24

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

IO 7/18

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

August 02, 2018

Aaron Galer
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL:
FAX

RE: Florance GC J 16A OrderNo.: 1807E65

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/27/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1807E65**
Date Reported: **8/2/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GC J 16A
Lab ID: 1807E65-001 **Matrix:** AIR

Client Sample ID: Zone 04 Influent
Collection Date: 7/25/2018 3:00:00 PM
Received Date: 7/27/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	120	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Toluene	420	10		µg/L	100	7/30/2018 11:49:09 AM	R53078
Ethylbenzene	34	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,2,4-Trimethylbenzene	30	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,3,5-Trimethylbenzene	30	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,2-Dichloroethane (EDC)	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,2-Dibromoethane (EDB)	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Naphthalene	ND	5.0		µg/L	25	7/30/2018 10:50:23 AM	R53078
1-Methylnaphthalene	ND	10		µg/L	25	7/30/2018 10:50:23 AM	R53078
2-Methylnaphthalene	ND	10		µg/L	25	7/30/2018 10:50:23 AM	R53078
Acetone	ND	25		µg/L	25	7/30/2018 10:50:23 AM	R53078
Bromobenzene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Bromodichloromethane	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Bromoform	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Bromomethane	ND	5.0		µg/L	25	7/30/2018 10:50:23 AM	R53078
2-Butanone	ND	25		µg/L	25	7/30/2018 10:50:23 AM	R53078
Carbon disulfide	ND	25		µg/L	25	7/30/2018 10:50:23 AM	R53078
Carbon tetrachloride	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Chlorobenzene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Chloroethane	ND	5.0		µg/L	25	7/30/2018 10:50:23 AM	R53078
Chloroform	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Chloromethane	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
2-Chlorotoluene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
4-Chlorotoluene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
cis-1,2-DCE	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
cis-1,3-Dichloropropene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,2-Dibromo-3-chloropropane	ND	5.0		µg/L	25	7/30/2018 10:50:23 AM	R53078
Dibromochloromethane	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Dibromomethane	ND	5.0		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,2-Dichlorobenzene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,3-Dichlorobenzene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,4-Dichlorobenzene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Dichlorodifluoromethane	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,1-Dichloroethane	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,1-Dichloroethene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,2-Dichloropropane	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,3-Dichloropropane	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
2,2-Dichloropropane	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GC J 16A
Lab ID: 1807E65-001 **Matrix:** AIR

Client Sample ID: Zone 04 Influent
Collection Date: 7/25/2018 3:00:00 PM
Received Date: 7/27/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Hexachlorobutadiene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
2-Hexanone	ND	25		µg/L	25	7/30/2018 10:50:23 AM	R53078
Isopropylbenzene	5.3	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
4-Isopropyltoluene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
4-Methyl-2-pentanone	ND	25		µg/L	25	7/30/2018 10:50:23 AM	R53078
Methylene chloride	ND	7.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
n-Butylbenzene	ND	7.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
n-Propylbenzene	5.8	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
sec-Butylbenzene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Styrene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
tert-Butylbenzene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,1,1,2-Tetrachloroethane	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,1,2,2-Tetrachloroethane	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Tetrachloroethene (PCE)	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
trans-1,2-DCE	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
trans-1,3-Dichloropropene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,2,3-Trichlorobenzene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,2,4-Trichlorobenzene	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,1,1-Trichloroethane	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,1,2-Trichloroethane	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Trichloroethene (TCE)	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Trichlorofluoromethane	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
1,2,3-Trichloropropane	ND	5.0		µg/L	25	7/30/2018 10:50:23 AM	R53078
Vinyl chloride	ND	2.5		µg/L	25	7/30/2018 10:50:23 AM	R53078
Xylenes, Total	530	3.8		µg/L	25	7/30/2018 10:50:23 AM	R53078
Surr: Dibromofluoromethane	97.0	70-130		%Rec	25	7/30/2018 10:50:23 AM	R53078
Surr: 1,2-Dichloroethane-d4	228	70-130	S	%Rec	25	7/30/2018 10:50:23 AM	R53078
Surr: Toluene-d8	147	70-130	S	%Rec	25	7/30/2018 10:50:23 AM	R53078
Surr: 4-Bromofluorobenzene	119	70-130		%Rec	25	7/30/2018 10:50:23 AM	R53078

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1807E65-001B; Zone 04 Influent
Location:
Lab ID: G18070586-001

Report Date: 08/02/18
Collection Date: 07/25/18 15:00
Date Received: 07/31/18
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	18.994	Mol %		GPA 2261	08/01/18 09:50 / blb
Nitrogen	79.044	Mol %		GPA 2261	08/01/18 09:50 / blb
Carbon Dioxide	1.595	Mol %		GPA 2261	08/01/18 09:50 / blb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	08/01/18 09:50 / blb
Methane	< 0.001	Mol %		GPA 2261	08/01/18 09:50 / blb
Ethane	< 0.001	Mol %		GPA 2261	08/01/18 09:50 / blb
Propane	< 0.001	Mol %		GPA 2261	08/01/18 09:50 / blb
Isobutane	< 0.001	Mol %		GPA 2261	08/01/18 09:50 / blb
n-Butane	0.001	Mol %		GPA 2261	08/01/18 09:50 / blb
Isopentane	0.005	Mol %		GPA 2261	08/01/18 09:50 / blb
n-Pentane	0.006	Mol %		GPA 2261	08/01/18 09:50 / blb
Hexanes plus	0.355	Mol %		GPA 2261	08/01/18 09:50 / blb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	08/01/18 09:50 / blb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	08/01/18 09:50 / blb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	08/01/18 09:50 / blb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	08/01/18 09:50 / blb
GPM Isopentane	0.0020	gal/MCF		GPA 2261	08/01/18 09:50 / blb
GPM n-Pentane	0.0020	gal/MCF		GPA 2261	08/01/18 09:50 / blb
GPM Hexanes plus	0.1540	gal/MCF		GPA 2261	08/01/18 09:50 / blb
GPM Pentanes plus	0.1580	gal/MCF		GPA 2261	08/01/18 09:50 / blb
GPM Total	0.1590	gal/MCF		GPA 2261	08/01/18 09:50 / blb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	08/01/18 09:50 / blb
Calculation Temperature Base	60	°F		GPA 2261	08/01/18 09:50 / blb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	08/01/18 09:50 / blb
Molecular Weight	29.26	unitless		GPA 2261	08/01/18 09:50 / blb
Pseudo-critical Pressure, psia	548	psia		GPA 2261	08/01/18 09:50 / blb
Pseudo-critical Temperature, deg R	245	deg R		GPA 2261	08/01/18 09:50 / blb
Specific Gravity (air=1.000)	1.013	unitless		GPA 2261	08/01/18 09:50 / blb
Gross BTU per cu ft @ std cond, dry	18.72	BTU/cu ft		GPA 2261	08/01/18 09:50 / blb
Gross BTU per cu ft @ std cond, wet	18.39	BTU/cu ft		GPA 2261	08/01/18 09:50 / blb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 08/02/18
Work Order: G18070586

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Batch: R244975
Lab ID: G18070586-001ADUP	Sample Duplicate				Run: Varian GC_180801A				08/01/18 09:55
Oxygen	18.989	Mol %	0.001				0.0	10	
Nitrogen	79.032	Mol %	0.001				0.0	10	
Carbon Dioxide	1.597	Mol %	0.001				0.1	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	0.001	Mol %	0.001				0.0	10	
Isopentane	0.005	Mol %	0.001				0.0	10	
n-Pentane	0.006	Mol %	0.001				0.0	10	
Hexanes plus	0.370	Mol %	0.001				4.1	10	

Qualifiers:

RL - Analyte reporting limit

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 08/02/18
Work Order: G18070586

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Analytical Run: R244975
Lab ID: ICV-1808010928	Initial Calibration Verification Standard								08/01/18 09:29
Oxygen	0.398	Mol %	0.001	83	75	110			
Nitrogen	5.030	Mol %	0.001	100	90	110			
Carbon Dioxide	4.923	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.129	Mol %	0.001	128	100	136			
Methane	72.998	Mol %	0.001	100	90	110			
Ethane	5.024	Mol %	0.001	101	90	110			
Propane	5.144	Mol %	0.001	101	90	110			
Isobutane	2.033	Mol %	0.001	101	90	110			
n-Butane	2.010	Mol %	0.001	100	90	110			
Isopentane	1.003	Mol %	0.001	100	90	110			
n-Pentane	0.998	Mol %	0.001	100	90	110			
Hexanes plus	0.310	Mol %	0.001	102	90	110			
Lab ID: CCV-1808010933	Continuing Calibration Verification Standard								08/01/18 09:33
Oxygen	0.592	Mol %	0.001	98	90	110			
Nitrogen	1.314	Mol %	0.001	94	85	110			
Carbon Dioxide	0.975	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.027	Mol %	0.001	108	70	130			
Methane	93.502	Mol %	0.001	100	90	110			
Ethane	1.026	Mol %	0.001	102	90	110			
Propane	1.010	Mol %	0.001	101	90	110			
Isobutane	0.505	Mol %	0.001	101	90	110			
n-Butane	0.493	Mol %	0.001	99	90	110			
Isopentane	0.202	Mol %	0.001	101	90	110			
n-Pentane	0.199	Mol %	0.001	99	90	110			
Hexanes plus	0.155	Mol %	0.001	102	90	110			
Lab ID: CCV-1808011647	Continuing Calibration Verification Standard								08/01/18 16:47
Oxygen	0.603	Mol %	0.001	100	90	110			
Nitrogen	1.352	Mol %	0.001	96	85	110			
Carbon Dioxide	0.973	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.027	Mol %	0.001	108	70	130			
Methane	93.462	Mol %	0.001	100	90	110			
Ethane	1.024	Mol %	0.001	102	90	110			
Propane	1.008	Mol %	0.001	101	90	110			
Isobutane	0.503	Mol %	0.001	100	90	110			
n-Butane	0.491	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.158	Mol %	0.001	104	90	110			
Method: GPA 2261									Batch: R244975

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807E65**

02-Aug-18

Client: Williams Four Corners
Project: Florance GC J 16A

Sample ID **1807e65-001a dup**	SampType: **DUP**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **Zone 04 Influent**	Batch ID: **R53078**	RunNo: **53078**
Prep Date:	Analysis Date: **7/30/2018**	SeqNo: **1745989** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	120	2.5						5.09	20	
Toluene	430	2.5						10.9	20	E
Ethylbenzene	33	2.5						3.31	20	
Methyl tert-butyl ether (MTBE)	ND	2.5						0	20	
1,2,4-Trimethylbenzene	29	2.5						1.29	20	
1,3,5-Trimethylbenzene	28	2.5						5.18	20	
1,2-Dichloroethane (EDC)	ND	2.5						0	20	
1,2-Dibromoethane (EDB)	ND	2.5						0	20	
Naphthalene	ND	5.0						0	20	
1-Methylnaphthalene	ND	10						0	20	
2-Methylnaphthalene	ND	10						0	20	
Acetone	ND	25						0	20	
Bromobenzene	ND	2.5						0	20	
Bromodichloromethane	ND	2.5						0	20	
Bromoform	ND	2.5						0	20	
Bromomethane	ND	5.0						0	20	
2-Butanone	ND	25						0	20	
Carbon disulfide	ND	25						0	20	
Carbon tetrachloride	ND	2.5						0	20	
Chlorobenzene	ND	2.5						0	20	
Chloroethane	ND	5.0						0	20	
Chloroform	ND	2.5						0	20	
Chloromethane	ND	2.5						0	20	
2-Chlorotoluene	ND	2.5						0	20	
4-Chlorotoluene	ND	2.5						0	20	
cis-1,2-DCE	ND	2.5						0	20	
cis-1,3-Dichloropropene	ND	2.5						0	20	
1,2-Dibromo-3-chloropropane	ND	5.0						0	20	
Dibromochloromethane	ND	2.5						0	20	
Dibromomethane	ND	5.0						0	20	
1,2-Dichlorobenzene	ND	2.5						0	20	
1,3-Dichlorobenzene	ND	2.5						0	20	
1,4-Dichlorobenzene	ND	2.5						0	20	
Dichlorodifluoromethane	ND	2.5						0	20	
1,1-Dichloroethane	ND	2.5						0	20	
1,1-Dichloroethene	ND	2.5						0	20	
1,2-Dichloropropane	ND	2.5						0	20	
1,3-Dichloropropane	ND	2.5						0	20	
2,2-Dichloropropane	ND	2.5						0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807E65**

02-Aug-18

Client: Williams Four Corners

Project: Florance GC J 16A

Sample ID **1807e65-001a dup**	SampType: **DUP**	TestCode: **EPA Method 8260B: Volatiles**	
Client ID: **Zone 04 Influent**	Batch ID: **R53078**	RunNo: **53078**	
Prep Date:	Analysis Date: **7/30/2018**	SeqNo: **1745989**	Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	2.5						0	20	
Hexachlorobutadiene	ND	2.5						0	20	
2-Hexanone	ND	25						0	20	
Isopropylbenzene	5.2	2.5						1.57	20	
4-Isopropyltoluene	ND	2.5						0	20	
4-Methyl-2-pentanone	ND	25						0	20	
Methylene chloride	ND	7.5						0	20	
n-Butylbenzene	ND	7.5						0	20	
n-Propylbenzene	5.6	2.5						3.43	20	
sec-Butylbenzene	ND	2.5						0	20	
Styrene	ND	2.5						0	20	
tert-Butylbenzene	ND	2.5						0	20	
1,1,1,2-Tetrachloroethane	ND	2.5						0	20	
1,1,2,2-Tetrachloroethane	ND	2.5						0	20	
Tetrachloroethene (PCE)	ND	2.5						0	20	
trans-1,2-DCE	ND	2.5						0	20	
trans-1,3-Dichloropropene	ND	2.5						0	20	
1,2,3-Trichlorobenzene	ND	2.5						0	20	
1,2,4-Trichlorobenzene	ND	2.5						0	20	
1,1,1-Trichloroethane	ND	2.5						0	20	
1,1,2-Trichloroethane	ND	2.5						0	20	
Trichloroethene (TCE)	ND	2.5						0	20	
Trichlorofluoromethane	ND	2.5						0	20	
1,2,3-Trichloropropane	ND	5.0						0	20	
Vinyl chloride	ND	2.5						0	20	
Xylenes, Total	500	3.8						4.62	20	
Surr: Dibromofluoromethane	26		25.00		103	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	54		25.00		218	70	130	0	0	S
Surr: Toluene-d8	32		25.00		127	70	130	0	0	
Surr: 4-Bromofluorobenzene	29		25.00		116	70	130	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WILLIAMS FOUR CORN Work Order Number: 1807E65 RcptNo: 1

Received By: Anne Thorne 7/27/2018 7:00:00 AM Anne Thorne

Completed By: Anne Thorne 7/27/2018 9:41:53 AM Anne Thorne

Reviewed By: MJ 07/27/18

Labeled by: AT 07/27/18

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☐ No ☐ NA ☑
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☐ NA ☑
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Chain-of-Custody Record

Client: Williams Four Corners
Aaron Galer
Mailing Address: 17755 Arroyo Dr.
Bloomfield, NM 87413
Phone #:
email or Fax#: aaron.galer@williams.com
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Florance GC J 16A
Project #:
Project Manager: LTE-Danny Burns 701-570-4727
Williams-Aaron Galer
Sampler: D. Burns
On Ice: ☐ Yes ☐ No
Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1806165	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA) Full List VOCs	8270 (Semi-VOA)	O_2	CO_2			Air Bubbles (Y or N)
7-25-18	15:00	Air	Zone 04 Influent	2-Tedlar	None	001										X		X	X			

Remarks:
cc: dburns@ltenv.com bherb@ltenv.com
mark.finney@aptim.com
jason.ramsay@aptim.com
aaron.galer@williams.com

Date	Time	Relinquished by:	Received by:	Date	Time
7-26-18	1100			7-26-18	1100
7-26-18	1208			7/26/18	1208
7/26/18	1841			07/27/18	0700

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

August 14, 2018

Aaron Galer
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL: (505) 632-4442
FAX

RE: Florance GCJ H16A

OrderNo.: 1808318

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/4/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1808318**
Date Reported: **8/14/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ H16A
Lab ID: 1808318-001 **Matrix:** AIR

Client Sample ID: Zone 1 Influent
Collection Date: 8/2/2018 2:30:00 PM
Received Date: 8/4/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	21	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Toluene	74	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Ethylbenzene	6.4	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,2,4-Trimethylbenzene	3.9	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,3,5-Trimethylbenzene	4.3	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,2-Dichloroethane (EDC)	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,2-Dibromoethane (EDB)	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Naphthalene	ND	5.0		µg/L	25	8/9/2018 12:46:21 PM	W53337
1-Methylnaphthalene	ND	10		µg/L	25	8/9/2018 12:46:21 PM	W53337
2-Methylnaphthalene	ND	10		µg/L	25	8/9/2018 12:46:21 PM	W53337
Acetone	ND	25		µg/L	25	8/9/2018 12:46:21 PM	W53337
Bromobenzene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Bromodichloromethane	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Bromoform	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Bromomethane	ND	5.0		µg/L	25	8/9/2018 12:46:21 PM	W53337
2-Butanone	ND	25		µg/L	25	8/9/2018 12:46:21 PM	W53337
Carbon disulfide	ND	25		µg/L	25	8/9/2018 12:46:21 PM	W53337
Carbon tetrachloride	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Chlorobenzene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Chloroethane	ND	5.0		µg/L	25	8/9/2018 12:46:21 PM	W53337
Chloroform	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Chloromethane	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
2-Chlorotoluene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
4-Chlorotoluene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
cis-1,2-DCE	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
cis-1,3-Dichloropropene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,2-Dibromo-3-chloropropane	ND	5.0		µg/L	25	8/9/2018 12:46:21 PM	W53337
Dibromochloromethane	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Dibromomethane	ND	5.0		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,2-Dichlorobenzene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,3-Dichlorobenzene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,4-Dichlorobenzene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Dichlorodifluoromethane	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,1-Dichloroethane	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,1-Dichloroethene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,2-Dichloropropane	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,3-Dichloropropane	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
2,2-Dichloropropane	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ H16A
Lab ID: 1808318-001 **Matrix:** AIR

Client Sample ID: Zone 1 Influent
Collection Date: 8/2/2018 2:30:00 PM
Received Date: 8/4/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Hexachlorobutadiene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
2-Hexanone	ND	25		µg/L	25	8/9/2018 12:46:21 PM	W53337
Isopropylbenzene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
4-Isopropyltoluene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
4-Methyl-2-pentanone	ND	25		µg/L	25	8/9/2018 12:46:21 PM	W53337
Methylene chloride	ND	7.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
n-Butylbenzene	ND	7.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
n-Propylbenzene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
sec-Butylbenzene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Styrene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
tert-Butylbenzene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,1,1,2-Tetrachloroethane	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,1,2,2-Tetrachloroethane	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Tetrachloroethene (PCE)	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
trans-1,2-DCE	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
trans-1,3-Dichloropropene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,2,3-Trichlorobenzene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,2,4-Trichlorobenzene	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,1,1-Trichloroethane	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,1,2-Trichloroethane	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Trichloroethene (TCE)	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Trichlorofluoromethane	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
1,2,3-Trichloropropane	ND	5.0		µg/L	25	8/9/2018 12:46:21 PM	W53337
Vinyl chloride	ND	2.5		µg/L	25	8/9/2018 12:46:21 PM	W53337
Xylenes, Total	70	3.8		µg/L	25	8/9/2018 12:46:21 PM	W53337
Surr: Dibromofluoromethane	93.9	70-130		%Rec	25	8/9/2018 12:46:21 PM	W53337
Surr: 1,2-Dichloroethane-d4	113	70-130		%Rec	25	8/9/2018 12:46:21 PM	W53337
Surr: Toluene-d8	116	70-130		%Rec	25	8/9/2018 12:46:21 PM	W53337
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	25	8/9/2018 12:46:21 PM	W53337

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1808318-001B; Zone 1 Influent
Location:
Lab ID: G18080168-001

Report Date: 08/13/18
Collection Date: 08/02/18 14:30
Date Received: 08/08/18
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	17.242	Mol %		GPA 2261	08/13/18 10:07 / djb
Nitrogen	80.027	Mol %		GPA 2261	08/13/18 10:07 / djb
Carbon Dioxide	2.661	Mol %		GPA 2261	08/13/18 10:07 / djb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	08/13/18 10:07 / djb
Methane	< 0.001	Mol %		GPA 2261	08/13/18 10:07 / djb
Ethane	< 0.001	Mol %		GPA 2261	08/13/18 10:07 / djb
Propane	< 0.001	Mol %		GPA 2261	08/13/18 10:07 / djb
Isobutane	< 0.001	Mol %		GPA 2261	08/13/18 10:07 / djb
n-Butane	< 0.001	Mol %		GPA 2261	08/13/18 10:07 / djb
Isopentane	0.002	Mol %		GPA 2261	08/13/18 10:07 / djb
n-Pentane	0.002	Mol %		GPA 2261	08/13/18 10:07 / djb
Hexanes plus	0.066	Mol %		GPA 2261	08/13/18 10:07 / djb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	08/13/18 10:07 / djb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	08/13/18 10:07 / djb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	08/13/18 10:07 / djb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	08/13/18 10:07 / djb
GPM Isopentane	0.0010	gal/MCF		GPA 2261	08/13/18 10:07 / djb
GPM n-Pentane	0.0010	gal/MCF		GPA 2261	08/13/18 10:07 / djb
GPM Hexanes plus	0.0290	gal/MCF		GPA 2261	08/13/18 10:07 / djb
GPM Pentanes plus	0.0300	gal/MCF		GPA 2261	08/13/18 10:07 / djb
GPM Total	0.0300	gal/MCF		GPA 2261	08/13/18 10:07 / djb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	08/13/18 10:07 / djb
Calculation Temperature Base	60	°F		GPA 2261	08/13/18 10:07 / djb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	08/13/18 10:07 / djb
Molecular Weight	29.17	unitless		GPA 2261	08/13/18 10:07 / djb
Pseudo-critical Pressure, psia	550	psia		GPA 2261	08/13/18 10:07 / djb
Pseudo-critical Temperature, deg R	246	deg R		GPA 2261	08/13/18 10:07 / djb
Specific Gravity (air=1.000)	1.010	unitless		GPA 2261	08/13/18 10:07 / djb
Gross BTU per cu ft @ std cond, dry	3.53	BTU/cu ft		GPA 2261	08/13/18 10:07 / djb
Gross BTU per cu ft @ std cond, wet	3.47	BTU/cu ft		GPA 2261	08/13/18 10:07 / djb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 08/13/18
Work Order: G18080168

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Analytical Run: R245237	
Lab ID: ICV-1808130925	12	Initial Calibration Verification Standard							08/13/18 09:25	
Oxygen		0.395	Mol %	0.001	82	75	110			
Nitrogen		5.019	Mol %	0.001	100	90	110			
Carbon Dioxide		4.930	Mol %	0.001	99	90	110			
Hydrogen Sulfide		0.130	Mol %	0.001	129	100	136			
Methane		73.014	Mol %	0.001	100	90	110			
Ethane		5.030	Mol %	0.001	101	90	110			
Propane		5.147	Mol %	0.001	101	90	110			
Isobutane		2.025	Mol %	0.001	100	90	110			
n-Butane		2.003	Mol %	0.001	99	90	110			
Isopentane		1.000	Mol %	0.001	100	90	110			
n-Pentane		0.998	Mol %	0.001	100	90	110			
Hexanes plus		0.309	Mol %	0.001	102	90	110			
Lab ID: CCV-1808130933	12	Continuing Calibration Verification Standard							08/13/18 09:34	
Oxygen		0.593	Mol %	0.001	99	90	110			
Nitrogen		1.310	Mol %	0.001	93	85	110			
Carbon Dioxide		0.970	Mol %	0.001	97	90	110			
Hydrogen Sulfide		0.026	Mol %	0.001	104	70	130			
Methane		93.508	Mol %	0.001	100	90	110			
Ethane		1.027	Mol %	0.001	102	90	110			
Propane		1.011	Mol %	0.001	101	90	110			
Isobutane		0.506	Mol %	0.001	101	90	110			
n-Butane		0.493	Mol %	0.001	99	90	110			
Isopentane		0.202	Mol %	0.001	101	90	110			
n-Pentane		0.199	Mol %	0.001	99	90	110			
Hexanes plus		0.155	Mol %	0.001	102	90	110			
Method: GPA 2261									Batch: R245237	
Lab ID: G18080168-001ADUP	12	Sample Duplicate				Run: Varian GC_180813A			08/13/18 10:11	
Oxygen		17.245	Mol %	0.001				0.0	10	
Nitrogen		80.027	Mol %	0.001				0.0	10	
Carbon Dioxide		2.659	Mol %	0.001				0.1	10	
Hydrogen Sulfide		< 0.001	Mol %	0.001					10	
Methane		< 0.001	Mol %	0.001					10	
Ethane		< 0.001	Mol %	0.001					10	
Propane		< 0.001	Mol %	0.001					10	
Isobutane		< 0.001	Mol %	0.001					10	
n-Butane		< 0.001	Mol %	0.001					10	
Isopentane		0.002	Mol %	0.001				0.0	10	
n-Pentane		0.002	Mol %	0.001				0.0	10	
Hexanes plus		0.065	Mol %	0.001				1.5	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WILLIAMS FOUR CORN Work Order Number: 1808318 RcptNo: 1

Received By: Erin Melendrez 8/4/2018 10:15:00 AM

Completed By: Ashley Gallegos 8/7/2018 10:15:03 AM

Reviewed By: DF 8/7/2018

Labeled by: JAB 08/07/18

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☐ No ☐ NA ☑
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☐ NA ☑
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: JAB 08/07/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	NA	Good	Yes			

Chain-of-Custody Record

Client: Williams Four Corners
Aaron Galer
Mailing Address:
Phone #: 801-249-1419
email or Fax#: aaron.galer@williams.com
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Florance GCJ #16A
Project #:
Project Manager: Aaron Galer - Williams, Donny Burns - LTE
Sampler: Eric Carroll
On Ice: ☐ Yes ☐ No
Sample Temperature: N/A

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
8/3/18	1430	Air	Zone 1 Influent	2 Tedlar	None	1808318-001

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	VOC's full list	Oxygen	CO_2		Air Bubbles (Y or N)
											x	x	x		

Date:	Time:	Relinquished by:	Received by:	Date	Time
8/3/18	1515	Eric Carroll		8/3/18	1515
8/3/18	1810		Courier 8/4/18 EDH	8/4/18	1015

Remarks:
cc: dburns@Henv.com
jason.ramsay@aptim.com
aaron.galer@williams.com

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

August 22, 2018

Danny Burns
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL:
FAX

RE: Florance GCJ 16A

OrderNo.: 1808722

Dear Danny Burns:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/10/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1808722**
Date Reported: **8/22/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1808722-001 **Matrix:** AIR

Client Sample ID: Zone 2 Influent
Collection Date: 8/9/2018 1:27:00 PM
Received Date: 8/10/2018 8:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	0.67	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Toluene	3.0	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Ethylbenzene	0.41	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Methyl tert-butyl ether (MTBE)	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,2,4-Trimethylbenzene	0.26	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,3,5-Trimethylbenzene	0.30	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,2-Dichloroethane (EDC)	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,2-Dibromoethane (EDB)	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Naphthalene	ND	0.40		µg/L	2	8/21/2018 2:09:00 PM	R53604
1-Methylnaphthalene	ND	0.80		µg/L	2	8/21/2018 2:09:00 PM	R53604
2-Methylnaphthalene	ND	0.80		µg/L	2	8/21/2018 2:09:00 PM	R53604
Acetone	ND	2.0		µg/L	2	8/21/2018 2:09:00 PM	R53604
Bromobenzene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Bromodichloromethane	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Bromoform	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Bromomethane	ND	0.40		µg/L	2	8/21/2018 2:09:00 PM	R53604
2-Butanone	ND	2.0		µg/L	2	8/21/2018 2:09:00 PM	R53604
Carbon disulfide	ND	2.0		µg/L	2	8/21/2018 2:09:00 PM	R53604
Carbon tetrachloride	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Chlorobenzene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Chloroethane	ND	0.40		µg/L	2	8/21/2018 2:09:00 PM	R53604
Chloroform	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Chloromethane	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
2-Chlorotoluene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
4-Chlorotoluene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
cis-1,2-DCE	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
cis-1,3-Dichloropropene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,2-Dibromo-3-chloropropane	ND	0.40		µg/L	2	8/21/2018 2:09:00 PM	R53604
Dibromochloromethane	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Dibromomethane	ND	0.40		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,2-Dichlorobenzene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,3-Dichlorobenzene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,4-Dichlorobenzene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Dichlorodifluoromethane	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,1-Dichloroethane	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,1-Dichloroethene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,2-Dichloropropane	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,3-Dichloropropane	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
2,2-Dichloropropane	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1808722-001 **Matrix:** AIR

Client Sample ID: Zone 2 Influent
Collection Date: 8/9/2018 1:27:00 PM
Received Date: 8/10/2018 8:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,1-Dichloropropene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Hexachlorobutadiene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
2-Hexanone	ND	2.0		µg/L	2	8/21/2018 2:09:00 PM	R53604
Isopropylbenzene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
4-Isopropyltoluene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
4-Methyl-2-pentanone	ND	2.0		µg/L	2	8/21/2018 2:09:00 PM	R53604
Methylene chloride	ND	0.60		µg/L	2	8/21/2018 2:09:00 PM	R53604
n-Butylbenzene	ND	0.60		µg/L	2	8/21/2018 2:09:00 PM	R53604
n-Propylbenzene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
sec-Butylbenzene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Styrene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
tert-Butylbenzene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,1,1,2-Tetrachloroethane	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,1,2,2-Tetrachloroethane	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Tetrachloroethene (PCE)	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
trans-1,2-DCE	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
trans-1,3-Dichloropropene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,2,3-Trichlorobenzene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,2,4-Trichlorobenzene	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,1,1-Trichloroethane	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,1,2-Trichloroethane	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Trichloroethene (TCE)	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Trichlorofluoromethane	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
1,2,3-Trichloropropane	ND	0.40		µg/L	2	8/21/2018 2:09:00 PM	R53604
Vinyl chloride	ND	0.20		µg/L	2	8/21/2018 2:09:00 PM	R53604
Xylenes, Total	4.5	0.30		µg/L	2	8/21/2018 2:09:00 PM	R53604
Surr: Dibromofluoromethane	95.2	70-130		%Rec	2	8/21/2018 2:09:00 PM	R53604
Surr: 1,2-Dichloroethane-d4	95.5	70-130		%Rec	2	8/21/2018 2:09:00 PM	R53604
Surr: Toluene-d8	103	70-130		%Rec	2	8/21/2018 2:09:00 PM	R53604
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	2	8/21/2018 2:09:00 PM	R53604

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1808722-001B; Zone 2 Influent
Location:
Lab ID: G18080279-001

Report Date: 08/21/18
Collection Date: 08/09/18 13:27
Date Received: 08/14/18
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	22.625	Mol %		GPA 2261	08/20/18 09:05 / blb
Nitrogen	77.339	Mol %		GPA 2261	08/20/18 09:05 / blb
Carbon Dioxide	0.036	Mol %		GPA 2261	08/20/18 09:05 / blb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	08/20/18 09:05 / blb
Methane	< 0.001	Mol %		GPA 2261	08/20/18 09:05 / blb
Ethane	< 0.001	Mol %		GPA 2261	08/20/18 09:05 / blb
Propane	< 0.001	Mol %		GPA 2261	08/20/18 09:05 / blb
Isobutane	< 0.001	Mol %		GPA 2261	08/20/18 09:05 / blb
n-Butane	< 0.001	Mol %		GPA 2261	08/20/18 09:05 / blb
Isopentane	< 0.001	Mol %		GPA 2261	08/20/18 09:05 / blb
n-Pentane	< 0.001	Mol %		GPA 2261	08/20/18 09:05 / blb
Hexanes plus	< 0.001	Mol %		GPA 2261	08/20/18 09:05 / blb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	08/20/18 09:05 / blb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	08/20/18 09:05 / blb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	08/20/18 09:05 / blb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	08/20/18 09:05 / blb
GPM Isopentane	< 0.0004	gal/MCF		GPA 2261	08/20/18 09:05 / blb
GPM n-Pentane	< 0.0004	gal/MCF		GPA 2261	08/20/18 09:05 / blb
GPM Hexanes plus	< 0.0004	gal/MCF		GPA 2261	08/20/18 09:05 / blb
GPM Pentanes plus	< 0.0004	gal/MCF		GPA 2261	08/20/18 09:05 / blb
GPM Total	< 0.0004	gal/MCF		GPA 2261	08/20/18 09:05 / blb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	08/20/18 09:05 / blb
Calculation Temperature Base	60	°F		GPA 2261	08/20/18 09:05 / blb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	08/20/18 09:05 / blb
Molecular Weight	28.92	unitless		GPA 2261	08/20/18 09:05 / blb
Pseudo-critical Pressure, psia	548	psia		GPA 2261	08/20/18 09:05 / blb
Pseudo-critical Temperature, deg R	239	deg R		GPA 2261	08/20/18 09:05 / blb
Specific Gravity (air=1.000)	1.002	unitless		GPA 2261	08/20/18 09:05 / blb
Gross BTU per cu ft @ std cond, dry	< 0.01	BTU/cu ft		GPA 2261	08/20/18 09:05 / blb
Gross BTU per cu ft @ std cond, wet	< 0.01	BTU/cu ft		GPA 2261	08/20/18 09:05 / blb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 08/21/18
Work Order: G18080279

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Analytical Run: R245409
Lab ID: ICV-1808200814	Initial Calibration Verification Standard								08/20/18 08:15
Oxygen	0.402	Mol %	0.001	84	75	110			
Nitrogen	5.038	Mol %	0.001	100	90	110			
Carbon Dioxide	4.924	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.125	Mol %	0.001	124	100	136			
Methane	73.053	Mol %	0.001	100	90	110			
Ethane	5.021	Mol %	0.001	101	90	110			
Propane	5.141	Mol %	0.001	101	90	110			
Isobutane	2.016	Mol %	0.001	100	90	110			
n-Butane	1.993	Mol %	0.001	99	90	110			
Isopentane	0.993	Mol %	0.001	99	90	110			
n-Pentane	0.988	Mol %	0.001	99	90	110			
Hexanes plus	0.306	Mol %	0.001	101	90	110			
Lab ID: CCV-1808200821	Continuing Calibration Verification Standard								08/20/18 08:21
Oxygen	0.591	Mol %	0.001	98	90	110			
Nitrogen	1.305	Mol %	0.001	93	85	110			
Carbon Dioxide	0.972	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.024	Mol %	0.001	96	70	130			
Methane	93.521	Mol %	0.001	100	90	110			
Ethane	1.027	Mol %	0.001	102	90	110			
Propane	1.012	Mol %	0.001	101	90	110			
Isobutane	0.503	Mol %	0.001	100	90	110			
n-Butane	0.491	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.155	Mol %	0.001	102	90	110			
Lab ID: CCV-1808201415	Continuing Calibration Verification Standard								08/20/18 14:16
Oxygen	0.581	Mol %	0.001	97	90	110			
Nitrogen	1.273	Mol %	0.001	91	85	110			
Carbon Dioxide	0.972	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.025	Mol %	0.001	100	70	130			
Methane	93.575	Mol %	0.001	100	90	110			
Ethane	1.023	Mol %	0.001	102	90	110			
Propane	1.007	Mol %	0.001	101	90	110			
Isobutane	0.501	Mol %	0.001	100	90	110			
n-Butane	0.489	Mol %	0.001	98	90	110			
Isopentane	0.200	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.156	Mol %	0.001	103	90	110			
Method: GPA 2261									Batch: R245409

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 08/21/18
Work Order: G18080279

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Batch: R245409
Lab ID: G18080279-001ADUP	Sample Duplicate				Run: Varian GC_180820A				08/20/18 09:11
Oxygen	22.630	Mol %	0.001				0.0	10	
Nitrogen	77.334	Mol %	0.001				0.0	10	
Carbon Dioxide	0.036	Mol %	0.001				0.0	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	< 0.001	Mol %	0.001					10	
n-Pentane	< 0.001	Mol %	0.001					10	
Hexanes plus	< 0.001	Mol %	0.001					10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WILLIAMS FOUR CORN Work Order Number: 1808722 RcptNo: 1

Received By: Anne Thorne 8/10/2018 8:10:00 AM Anne Thorne

Completed By: Anne Thorne 8/13/2018 9:08:29 AM Anne Thorne

Reviewed By: SAB 08/13/18

Labeled by: A 08/13/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☐	NA ☑
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1			Yes			

Chain-of-Custody Record

Client: Williams Four Corners

Aaron Gaier

Mailing Address:

Phone #:

email or Fax#: aaron.gaier@williams.com

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☒ EDD (Type) PDF

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: Florance GC3 IGA

Project #:

Project Manager: Aaron Gaier - Williams; Danny Burns - LTE

Sampler: Eric Carroll

On Ice: ☐ Yes ☐ No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1808722	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	VOC's	Og	COg		Air Bubbles (Y or N)
8/9/18	1327	Air	Zone 2 Influent	2 Tedlar	None	001												X	X	X		

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
8/9/18	1500			08/10/18	0810	Please cc: dburns@lteenv.com
Date:	Time:	Relinquished by:	Received by:	Date	Time	

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

August 27, 2018

Aaron Galer
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL:
FAX

RE: Florance GCJ 16A

OrderNo.: 1808B26

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/17/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1808B26**
Date Reported: **8/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1808B26-001 **Matrix:** AIR

Client Sample ID: Zone 03 Influent
Collection Date: 8/16/2018 3:00:00 PM
Received Date: 8/17/2018 6:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	31	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Toluene	210	5.0		µg/L	50	8/20/2018 4:59:00 PM	R53570
Ethylbenzene	12	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Methyl tert-butyl ether (MTBE)	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,2,4-Trimethylbenzene	6.0	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,3,5-Trimethylbenzene	6.0	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,2-Dichloroethane (EDC)	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,2-Dibromoethane (EDB)	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Naphthalene	ND	4.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1-Methylnaphthalene	ND	8.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
2-Methylnaphthalene	ND	8.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Acetone	ND	20		µg/L	20	8/20/2018 3:21:00 PM	R53570
Bromobenzene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Bromodichloromethane	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Bromoform	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Bromomethane	ND	4.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
2-Butanone	ND	20		µg/L	20	8/20/2018 3:21:00 PM	R53570
Carbon disulfide	ND	20		µg/L	20	8/20/2018 3:21:00 PM	R53570
Carbon tetrachloride	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Chlorobenzene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Chloroethane	ND	4.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Chloroform	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Chloromethane	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
2-Chlorotoluene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
4-Chlorotoluene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
cis-1,2-DCE	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
cis-1,3-Dichloropropene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,2-Dibromo-3-chloropropane	ND	4.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Dibromochloromethane	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Dibromomethane	ND	4.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,2-Dichlorobenzene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,3-Dichlorobenzene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,4-Dichlorobenzene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Dichlorodifluoromethane	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,1-Dichloroethane	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,1-Dichloroethene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,2-Dichloropropane	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,3-Dichloropropane	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
2,2-Dichloropropane	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1808B26-001 **Matrix:** AIR

Client Sample ID: Zone 03 Influent
Collection Date: 8/16/2018 3:00:00 PM
Received Date: 8/17/2018 6:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,1-Dichloropropene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Hexachlorobutadiene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
2-Hexanone	ND	20		µg/L	20	8/20/2018 3:21:00 PM	R53570
Isopropylbenzene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
4-Isopropyltoluene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
4-Methyl-2-pentanone	ND	20		µg/L	20	8/20/2018 3:21:00 PM	R53570
Methylene chloride	ND	6.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
n-Butylbenzene	ND	6.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
n-Propylbenzene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
sec-Butylbenzene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Styrene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
tert-Butylbenzene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,1,1,2-Tetrachloroethane	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Tetrachloroethene (PCE)	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
trans-1,2-DCE	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
trans-1,3-Dichloropropene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,2,3-Trichlorobenzene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,2,4-Trichlorobenzene	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,1,1-Trichloroethane	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,1,2-Trichloroethane	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Trichloroethene (TCE)	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Trichlorofluoromethane	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
1,2,3-Trichloropropane	ND	4.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Vinyl chloride	ND	2.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Xylenes, Total	180	3.0		µg/L	20	8/20/2018 3:21:00 PM	R53570
Surr: Dibromofluoromethane	100	70-130		%Rec	20	8/20/2018 3:21:00 PM	R53570
Surr: 1,2-Dichloroethane-d4	92.1	70-130		%Rec	20	8/20/2018 3:21:00 PM	R53570
Surr: Toluene-d8	104	70-130		%Rec	20	8/20/2018 3:21:00 PM	R53570
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	20	8/20/2018 3:21:00 PM	R53570

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1808B26-001B; Zone 03 Influent
Location:
Lab ID: G18080424-001

Report Date: 08/27/18
Collection Date: 08/16/18 15:00
Date Received: 08/21/18
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	21.758	Mol %		GPA 2261	08/27/18 12:45 / djb
Nitrogen	77.595	Mol %		GPA 2261	08/27/18 12:45 / djb
Carbon Dioxide	0.467	Mol %		GPA 2261	08/27/18 12:45 / djb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	08/27/18 12:45 / djb
Methane	< 0.001	Mol %		GPA 2261	08/27/18 12:45 / djb
Ethane	< 0.001	Mol %		GPA 2261	08/27/18 12:45 / djb
Propane	< 0.001	Mol %		GPA 2261	08/27/18 12:45 / djb
Isobutane	< 0.001	Mol %		GPA 2261	08/27/18 12:45 / djb
n-Butane	< 0.001	Mol %		GPA 2261	08/27/18 12:45 / djb
Isopentane	0.001	Mol %		GPA 2261	08/27/18 12:45 / djb
n-Pentane	0.001	Mol %		GPA 2261	08/27/18 12:45 / djb
Hexanes plus	0.178	Mol %		GPA 2261	08/27/18 12:45 / djb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	08/27/18 12:45 / djb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	08/27/18 12:45 / djb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	08/27/18 12:45 / djb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	08/27/18 12:45 / djb
GPM Isopentane	< 0.0004	gal/MCF		GPA 2261	08/27/18 12:45 / djb
GPM n-Pentane	0.0010	gal/MCF		GPA 2261	08/27/18 12:45 / djb
GPM Hexanes plus	0.0770	gal/MCF		GPA 2261	08/27/18 12:45 / djb
GPM Pentanes plus	0.0780	gal/MCF		GPA 2261	08/27/18 12:45 / djb
GPM Total	0.0780	gal/MCF		GPA 2261	08/27/18 12:45 / djb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	08/27/18 12:45 / djb
Calculation Temperature Base	60	°F		GPA 2261	08/27/18 12:45 / djb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	08/27/18 12:45 / djb
Molecular Weight	29.07	unitless		GPA 2261	08/27/18 12:45 / djb
Pseudo-critical Pressure, psia	548	psia		GPA 2261	08/27/18 12:45 / djb
Pseudo-critical Temperature, deg R	242	deg R		GPA 2261	08/27/18 12:45 / djb
Specific Gravity (air=1.000)	1.007	unitless		GPA 2261	08/27/18 12:45 / djb
Gross BTU per cu ft @ std cond, dry	9.25	BTU/cu ft		GPA 2261	08/27/18 12:45 / djb
Gross BTU per cu ft @ std cond, wet	9.09	BTU/cu ft		GPA 2261	08/27/18 12:45 / djb

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 08/27/18
Work Order: G18080424

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Analytical Run: R245544
Lab ID: ICV-1808271211	Initial Calibration Verification Standard								08/27/18 12:12
Oxygen	0.394	Mol %	0.001	82	75	110			
Nitrogen	5.006	Mol %	0.001	99	90	110			
Carbon Dioxide	4.937	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.131	Mol %	0.001	130	100	136			
Methane	73.033	Mol %	0.001	100	90	110			
Ethane	5.026	Mol %	0.001	101	90	110			
Propane	5.145	Mol %	0.001	101	90	110			
Isobutane	2.023	Mol %	0.001	100	90	110			
n-Butane	2.003	Mol %	0.001	99	90	110			
Isopentane	0.999	Mol %	0.001	100	90	110			
n-Pentane	0.994	Mol %	0.001	99	90	110			
Hexanes plus	0.309	Mol %	0.001	102	90	110			
Lab ID: CCV-1808271222	Continuing Calibration Verification Standard								08/27/18 12:23
Oxygen	0.588	Mol %	0.001	98	90	110			
Nitrogen	1.283	Mol %	0.001	91	85	110			
Carbon Dioxide	0.972	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.027	Mol %	0.001	108	70	130			
Methane	93.549	Mol %	0.001	100	90	110			
Ethane	1.027	Mol %	0.001	102	90	110			
Propane	1.010	Mol %	0.001	101	90	110			
Isobutane	0.502	Mol %	0.001	100	90	110			
n-Butane	0.490	Mol %	0.001	98	90	110			
Isopentane	0.199	Mol %	0.001	99	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.155	Mol %	0.001	102	90	110			
Lab ID: CCV-1808271315	Continuing Calibration Verification Standard								08/27/18 13:16
Oxygen	0.588	Mol %	0.001	98	90	110			
Nitrogen	1.282	Mol %	0.001	91	85	110			
Carbon Dioxide	0.971	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.026	Mol %	0.001	104	70	130			
Methane	93.543	Mol %	0.001	100	90	110			
Ethane	1.027	Mol %	0.001	102	90	110			
Propane	1.011	Mol %	0.001	101	90	110			
Isobutane	0.504	Mol %	0.001	101	90	110			
n-Butane	0.492	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.157	Mol %	0.001	104	90	110			
Method: GPA 2261									Batch: R245544

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 08/27/18
Work Order: G18080424

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Batch: R245544
Lab ID: G18080424-001ADUP	Sample Duplicate				Run: Varian GC_180827A				08/27/18 12:50
Oxygen	21.753	Mol %	0.001				0.0	10	
Nitrogen	77.589	Mol %	0.001				0.0	10	
Carbon Dioxide	0.468	Mol %	0.001				0.2	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	0.001	Mol %	0.001				0.0	10	
n-Pentane	0.001	Mol %	0.001				0.0	10	
Hexanes plus	0.188	Mol %	0.001				5.5	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WILLIAMS FOUR CORN Work Order Number: 1808B26 RcptNo: 1

Received By: Anne Thorne 8/17/2018 6:30:00 AM Anne Thorne

Completed By: Anne Thorne 8/17/2018 2:16:11 PM Anne Thorne

Reviewed By: JB 8/17/18

Labeled by: AT 08/17/18

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☐ No ☐ NA ☑
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☐ NA ☑
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Client: Williams Four Corners

Mailing Address: 17755 Arroyo D. Bloomfield NM

Phone #:

email or Fax#: aaron.galer@ltenv.com

QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ NELAP ☐ Other ______

☒ EDD (Type) PDF

Turn-Around Time: ☒ Standard ☐ Rush

Project Name: Florance GCJ16A

Project #:

Project Manager: [redacted] LTE-Danny Burns, Williams - Aaron Galer

Sampler: D. Burns

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.1-CF-1.0=1.1

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1808B26	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	~~8260B (VOA)~~	8270 (Semi-VOA)	8260 Full List VOCs	CO_2	O_2		Air Bubbles (Y or N)
8-16-18	15:00	Air	Zone 03 Influent	2-Tedlar	None	-201												X	X	X		

Date	Time	Relinquished by	Received by	Date	Time
8-16-18	17:00	[signature]	[signature]	8/16/18	1700
8/16/18	1810	[signature]	[signature]	08/17/18	[illegible]

Remarks: cc: dburns@ltenv.com
jason.ramsay@optim.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

August 31, 2018

Aaron Galer
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL: (505) 632-4442
FAX

RE: Florance GCJ 16A

OrderNo.: 1808F96

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/24/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1808F96**
Date Reported: **8/31/2018**

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1808F96-001 **Matrix:** AIR

Client Sample ID: Zone 04 Influent
Collection Date: 8/23/2018 5:15:00 PM
Received Date: 8/24/2018 7:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	28	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Toluene	170	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Ethylbenzene	12	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Methyl tert-butyl ether (MTBE)	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,2,4-Trimethylbenzene	8.9	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,3,5-Trimethylbenzene	8.3	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,2-Dichloroethane (EDC)	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,2-Dibromoethane (EDB)	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Naphthalene	ND	4.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1-Methylnaphthalene	ND	8.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
2-Methylnaphthalene	ND	8.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Acetone	ND	20		µg/L	20	8/29/2018 2:12:00 PM	R53788
Bromobenzene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Bromodichloromethane	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Bromoform	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Bromomethane	ND	4.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
2-Butanone	ND	20		µg/L	20	8/29/2018 2:12:00 PM	R53788
Carbon disulfide	ND	20		µg/L	20	8/29/2018 2:12:00 PM	R53788
Carbon tetrachloride	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Chlorobenzene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Chloroethane	ND	4.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Chloroform	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Chloromethane	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
2-Chlorotoluene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
4-Chlorotoluene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
cis-1,2-DCE	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
cis-1,3-Dichloropropene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,2-Dibromo-3-chloropropane	ND	4.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Dibromochloromethane	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Dibromomethane	ND	4.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,2-Dichlorobenzene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,3-Dichlorobenzene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,4-Dichlorobenzene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Dichlorodifluoromethane	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,1-Dichloroethane	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,1-Dichloroethene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,2-Dichloropropane	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,3-Dichloropropane	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
2,2-Dichloropropane	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1808F96-001 **Matrix:** AIR

Client Sample ID: Zone 04 Influent
Collection Date: 8/23/2018 5:15:00 PM
Received Date: 8/24/2018 7:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,1-Dichloropropene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Hexachlorobutadiene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
2-Hexanone	ND	20		µg/L	20	8/29/2018 2:12:00 PM	R53788
Isopropylbenzene	2.0	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
4-Isopropyltoluene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
4-Methyl-2-pentanone	ND	20		µg/L	20	8/29/2018 2:12:00 PM	R53788
Methylene chloride	ND	6.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
n-Butylbenzene	ND	6.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
n-Propylbenzene	1.8	1.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
sec-Butylbenzene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Styrene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
tert-Butylbenzene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,1,1,2-Tetrachloroethane	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Tetrachloroethene (PCE)	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
trans-1,2-DCE	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
trans-1,3-Dichloropropene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,2,3-Trichlorobenzene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,2,4-Trichlorobenzene	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,1,1-Trichloroethane	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,1,2-Trichloroethane	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Trichloroethene (TCE)	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Trichlorofluoromethane	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
1,2,3-Trichloropropane	ND	4.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Vinyl chloride	ND	2.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Xylenes, Total	160	3.0		µg/L	20	8/29/2018 2:12:00 PM	R53788
Surr: Dibromofluoromethane	98.0	70-130		%Rec	20	8/29/2018 2:12:00 PM	R53788
Surr: 1,2-Dichloroethane-d4	98.9	70-130		%Rec	20	8/29/2018 2:12:00 PM	R53788
Surr: Toluene-d8	113	70-130		%Rec	20	8/29/2018 2:12:00 PM	R53788
Surr: 4-Bromofluorobenzene	98.5	70-130		%Rec	20	8/29/2018 2:12:00 PM	R53788

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1808F96-001B; Zone 04 Influent
Location:
Lab ID: G18080542-001

Report Date: 08/30/18
Collection Date: 08/23/18 17:15
Date Received: 08/28/18
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	20.710	Mol %		GPA 2261	08/30/18 10:05 / djb
Nitrogen	78.034	Mol %		GPA 2261	08/30/18 10:05 / djb
Carbon Dioxide	1.101	Mol %		GPA 2261	08/30/18 10:05 / djb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	08/30/18 10:05 / djb
Methane	< 0.001	Mol %		GPA 2261	08/30/18 10:05 / djb
Ethane	< 0.001	Mol %		GPA 2261	08/30/18 10:05 / djb
Propane	< 0.001	Mol %		GPA 2261	08/30/18 10:05 / djb
Isobutane	< 0.001	Mol %		GPA 2261	08/30/18 10:05 / djb
n-Butane	< 0.001	Mol %		GPA 2261	08/30/18 10:05 / djb
Isopentane	0.002	Mol %		GPA 2261	08/30/18 10:05 / djb
n-Pentane	0.003	Mol %		GPA 2261	08/30/18 10:05 / djb
Hexanes plus	0.150	Mol %		GPA 2261	08/30/18 10:05 / djb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	08/30/18 10:05 / djb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	08/30/18 10:05 / djb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	08/30/18 10:05 / djb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	08/30/18 10:05 / djb
GPM Isopentane	0.0010	gal/MCF		GPA 2261	08/30/18 10:05 / djb
GPM n-Pentane	0.0010	gal/MCF		GPA 2261	08/30/18 10:05 / djb
GPM Hexanes plus	0.0650	gal/MCF		GPA 2261	08/30/18 10:05 / djb
GPM Pentanes plus	0.0670	gal/MCF		GPA 2261	08/30/18 10:05 / djb
GPM Total	0.0670	gal/MCF		GPA 2261	08/30/18 10:05 / djb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	08/30/18 10:05 / djb
Calculation Temperature Base	60	°F		GPA 2261	08/30/18 10:05 / djb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	08/30/18 10:05 / djb
Molecular Weight	29.11	unitless		GPA 2261	08/30/18 10:05 / djb
Pseudo-critical Pressure, psia	549	psia		GPA 2261	08/30/18 10:05 / djb
Pseudo-critical Temperature, deg R	243	deg R		GPA 2261	08/30/18 10:05 / djb
Specific Gravity (air=1.000)	1.008	unitless		GPA 2261	08/30/18 10:05 / djb
Gross BTU per cu ft @ std cond, dry	7.93	BTU/cu ft		GPA 2261	08/30/18 10:05 / djb
Gross BTU per cu ft @ std cond, wet	7.79	BTU/cu ft		GPA 2261	08/30/18 10:05 / djb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 08/30/18
Work Order: G18080542

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Analytical Run: R245630
Lab ID: ICV-1808300915	Initial Calibration Verification Standard								08/30/18 09:15
Oxygen	0.394	Mol %	0.001	82	75	110			
Nitrogen	5.019	Mol %	0.001	100	90	110			
Carbon Dioxide	4.928	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.125	Mol %	0.001	124	100	136			
Methane	73.055	Mol %	0.001	100	90	110			
Ethane	5.023	Mol %	0.001	101	90	110			
Propane	5.140	Mol %	0.001	101	90	110			
Isobutane	2.022	Mol %	0.001	100	90	110			
n-Butane	2.000	Mol %	0.001	99	90	110			
Isopentane	0.996	Mol %	0.001	100	90	110			
n-Pentane	0.990	Mol %	0.001	99	90	110			
Hexanes plus	0.308	Mol %	0.001	102	90	110			
Lab ID: CCV-1808300923	Continuing Calibration Verification Standard								08/30/18 09:23
Oxygen	0.581	Mol %	0.001	97	90	110			
Nitrogen	1.275	Mol %	0.001	91	85	110			
Carbon Dioxide	0.972	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.024	Mol %	0.001	96	70	130			
Methane	93.559	Mol %	0.001	100	90	110			
Ethane	1.027	Mol %	0.001	102	90	110			
Propane	1.011	Mol %	0.001	101	90	110			
Isobutane	0.505	Mol %	0.001	101	90	110			
n-Butane	0.492	Mol %	0.001	98	90	110			
Isopentane	0.200	Mol %	0.001	100	90	110			
n-Pentane	0.199	Mol %	0.001	99	90	110			
Hexanes plus	0.155	Mol %	0.001	102	90	110			
Lab ID: CCV-1808301111	Continuing Calibration Verification Standard								08/30/18 11:12
Oxygen	0.580	Mol %	0.001	96	90	110			
Nitrogen	1.268	Mol %	0.001	90	85	110			
Carbon Dioxide	0.971	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.024	Mol %	0.001	96	70	130			
Methane	93.573	Mol %	0.001	100	90	110			
Ethane	1.035	Mol %	0.001	103	90	110			
Propane	1.011	Mol %	0.001	101	90	110			
Isobutane	0.500	Mol %	0.001	100	90	110			
n-Butane	0.488	Mol %	0.001	98	90	110			
Isopentane	0.199	Mol %	0.001	99	90	110			
n-Pentane	0.197	Mol %	0.001	98	90	110			
Hexanes plus	0.154	Mol %	0.001	102	90	110			
Method: GPA 2261									Batch: R245630

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 08/30/18
Work Order: G18080542

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Batch: R245630
Lab ID: G18080542-001ADUP	Sample Duplicate				Run: Varian GC_180830A				08/30/18 10:15
Oxygen	20.706	Mol %	0.001				0.0	10	
Nitrogen	78.035	Mol %	0.001				0.0	10	
Carbon Dioxide	1.099	Mol %	0.001				0.2	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	0.002	Mol %	0.001				0.0	10	
n-Pentane	0.003	Mol %	0.001				0.0	10	
Hexanes plus	0.155	Mol %	0.001				3.3	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1808F96**

31-Aug-18

Client: Williams Four Corners

Project: Florance GCJ 16A

Sample ID **1808f96-001adup**	SampType: **DUP**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **Zone 04 Influent**	Batch ID: **R53788**	RunNo: **53788**
Prep Date:	Analysis Date: **8/29/2018**	SeqNo: **1775104** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	30	2.0						7.17	20	
Toluene	180	2.0						4.97	20	
Ethylbenzene	14	2.0						10.4	20	
Methyl tert-butyl ether (MTBE)	ND	2.0						0	20	
1,2,4-Trimethylbenzene	10	2.0						15.2	20	
1,3,5-Trimethylbenzene	9.6	2.0						14.8	20	
1,2-Dichloroethane (EDC)	ND	2.0						0	20	
1,2-Dibromoethane (EDB)	ND	2.0						0	20	
Naphthalene	ND	4.0						0	20	
1-Methylnaphthalene	ND	8.0						0	20	
2-Methylnaphthalene	ND	8.0						0	20	
Acetone	ND	20						0	20	
Bromobenzene	ND	2.0						0	20	
Bromodichloromethane	ND	2.0						0	20	
Bromoform	ND	2.0						0	20	
Bromomethane	ND	4.0						0	20	
2-Butanone	ND	20						0	20	
Carbon disulfide	ND	20						0	20	
Carbon tetrachloride	ND	2.0						0	20	
Chlorobenzene	ND	2.0						0	20	
Chloroethane	ND	4.0						0	20	
Chloroform	ND	2.0						0	20	
Chloromethane	ND	2.0						0	20	
2-Chlorotoluene	ND	2.0						0	20	
4-Chlorotoluene	ND	2.0						0	20	
cis-1,2-DCE	ND	2.0						0	20	
cis-1,3-Dichloropropene	ND	2.0						0	20	
1,2-Dibromo-3-chloropropane	ND	4.0						0	20	
Dibromochloromethane	ND	2.0						0	20	
Dibromomethane	ND	4.0						0	20	
1,2-Dichlorobenzene	ND	2.0						0	20	
1,3-Dichlorobenzene	ND	2.0						0	20	
1,4-Dichlorobenzene	ND	2.0						0	20	
Dichlorodifluoromethane	ND	2.0						0	20	
1,1-Dichloroethane	ND	2.0						0	20	
1,1-Dichloroethene	ND	2.0						0	20	
1,2-Dichloropropane	ND	2.0						0	20	
1,3-Dichloropropane	ND	2.0						0	20	
2,2-Dichloropropane	ND	2.0						0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1808F96**

31-Aug-18

Client: Williams Four Corners
Project: Florance GCJ 16A

Sample ID **1808f96-001adup**	SampType: **DUP**	TestCode: **EPA Method 8260B: Volatiles**	
Client ID: **Zone 04 Influent**	Batch ID: **R53788**	RunNo: **53788**	
Prep Date:	Analysis Date: **8/29/2018**	SeqNo: **1775104**	Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	2.0						0	20	
Hexachlorobutadiene	ND	2.0						0	20	
2-Hexanone	ND	20						0	20	
Isopropylbenzene	2.2	2.0						9.32	20	
4-Isopropyltoluene	ND	2.0						0	20	
4-Methyl-2-pentanone	ND	20						0	20	
Methylene chloride	ND	6.0						0	20	
n-Butylbenzene	ND	6.0						0	20	
n-Propylbenzene	2.0	2.0						14.1	20	
sec-Butylbenzene	ND	2.0						0	20	
Styrene	ND	2.0						0	20	
tert-Butylbenzene	ND	2.0						0	20	
1,1,1,2-Tetrachloroethane	ND	2.0						0	20	
1,1,2,2-Tetrachloroethane	ND	2.0						0	20	
Tetrachloroethene (PCE)	ND	2.0						0	20	
trans-1,2-DCE	ND	2.0						0	20	
trans-1,3-Dichloropropene	ND	2.0						0	20	
1,2,3-Trichlorobenzene	ND	2.0						0	20	
1,2,4-Trichlorobenzene	ND	2.0						0	20	
1,1,1-Trichloroethane	ND	2.0						0	20	
1,1,2-Trichloroethane	ND	2.0						0	20	
Trichloroethene (TCE)	ND	2.0						0	20	
Trichlorofluoromethane	ND	2.0						0	20	
1,2,3-Trichloropropane	ND	4.0						0	20	
Vinyl chloride	ND	2.0						0	20	
Xylenes, Total	180	3.0						8.90	20	
Surr: Dibromofluoromethane	20		20.00		98.1	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	20		20.00		101	70	130	0	0	
Surr: Toluene-d8	22		20.00		112	70	130	0	0	
Surr: 4-Bromofluorobenzene	20		20.00		99.0	70	130	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WILLIAMS FOUR CORN Work Order Number: 1808F96 RcptNo: 1

Received By: Jazzmine Burkhead 8/24/2018 7:45:00 AM

Completed By: Ashley Gallegos 8/27/2018 11:09:14 AM

Reviewed By: ENM 8/27/18

Labeled by: JAB 08/27/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	Checked by: JAB 8/27/18
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified:		Date	
By Whom:		Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person	
Regarding:			
Client Instructions:			

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	NA	Good	Yes			

Chain-of-Custody Record

Client: Williams Four Corners

Mailing Address:

Phone #:

email or Fax#: aaron.gater@williams.com

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Florance GC J16A

Project #:

Project Manager: LTE- Danny Burns

Sampler: D. Burns

On Ice: ☑ Yes ☐ No

Sample Temperature: 4.6 N/A

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1808F94
8/23/18	1715	Air	Zone 04 Influent	2-Tedlar	cool	-001

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA) Full VOCs	8270 (Semi-VOA)	O_2	CO_2			Air Bubbles (Y or N)
									X		X	X			

Date:	Time:	Relinquished by:	Received by:	Date	Time
8-23-18	1806			8/23/18	1807
8/23/18	1901			08/24/18	07:45

Remarks: cc: dburns@ltenv.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 12, 2018

Aaron Galer
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL: (505) 632-4442
FAX

RE: Florance GCJ 16A OrderNo.: 1808I67

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/31/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1808I67-001 **Matrix:** AIR

Client Sample ID: Zone 1 Influent
Collection Date: 8/30/2018 3:00:00 PM
Received Date: 8/31/2018 8:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	5.4	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Toluene	15	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Ethylbenzene	2.0	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Methyl tert-butyl ether (MTBE)	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,2,4-Trimethylbenzene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,3,5-Trimethylbenzene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,2-Dichloroethane (EDC)	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,2-Dibromoethane (EDB)	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Naphthalene	ND	4.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1-Methylnaphthalene	ND	8.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
2-Methylnaphthalene	ND	8.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Acetone	ND	20		µg/L	20	9/11/2018 11:58:33 AM	W54084
Bromobenzene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Bromodichloromethane	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Bromoform	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Bromomethane	ND	4.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
2-Butanone	ND	20		µg/L	20	9/11/2018 11:58:33 AM	W54084
Carbon disulfide	ND	20		µg/L	20	9/11/2018 11:58:33 AM	W54084
Carbon tetrachloride	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Chlorobenzene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Chloroethane	ND	4.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Chloroform	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Chloromethane	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
2-Chlorotoluene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
4-Chlorotoluene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
cis-1,2-DCE	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
cis-1,3-Dichloropropene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,2-Dibromo-3-chloropropane	ND	4.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Dibromochloromethane	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Dibromomethane	ND	4.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,2-Dichlorobenzene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,3-Dichlorobenzene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,4-Dichlorobenzene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Dichlorodifluoromethane	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,1-Dichloroethane	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,1-Dichloroethene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,2-Dichloropropane	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,3-Dichloropropane	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
2,2-Dichloropropane	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1808I67-001 **Matrix:** AIR

Client Sample ID: Zone 1 Influent
Collection Date: 8/30/2018 3:00:00 PM
Received Date: 8/31/2018 8:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Hexachlorobutadiene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
2-Hexanone	ND	20		µg/L	20	9/11/2018 11:58:33 AM	W54084
Isopropylbenzene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
4-Isopropyltoluene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
4-Methyl-2-pentanone	ND	20		µg/L	20	9/11/2018 11:58:33 AM	W54084
Methylene chloride	ND	6.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
n-Butylbenzene	ND	6.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
n-Propylbenzene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
sec-Butylbenzene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Styrene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
tert-Butylbenzene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,1,1,2-Tetrachloroethane	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Tetrachloroethene (PCE)	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
trans-1,2-DCE	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
trans-1,3-Dichloropropene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,2,3-Trichlorobenzene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,2,4-Trichlorobenzene	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,1,1-Trichloroethane	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,1,2-Trichloroethane	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Trichloroethene (TCE)	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Trichlorofluoromethane	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
1,2,3-Trichloropropane	ND	4.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Vinyl chloride	ND	2.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Xylenes, Total	22	3.0		µg/L	20	9/11/2018 11:58:33 AM	W54084
Surr: Dibromofluoromethane	87.0	70-130		%Rec	20	9/11/2018 11:58:33 AM	W54084
Surr: 1,2-Dichloroethane-d4	80.7	70-130		%Rec	20	9/11/2018 11:58:33 AM	W54084
Surr: Toluene-d8	101	70-130		%Rec	20	9/11/2018 11:58:33 AM	W54084
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	20	9/11/2018 11:58:33 AM	W54084

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1808I67-001B; Zone 1 Influent
Location:
Lab ID: G18090086-001

Report Date: 09/11/18
Collection Date: 08/30/18 15:00
Date Received: 09/05/18
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	20.542	Mol %		GPA 2261	09/10/18 11:22 / djb
Nitrogen	78.206	Mol %		GPA 2261	09/10/18 11:22 / djb
Carbon Dioxide	1.208	Mol %		GPA 2261	09/10/18 11:22 / djb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	09/10/18 11:22 / djb
Methane	< 0.001	Mol %		GPA 2261	09/10/18 11:22 / djb
Ethane	< 0.001	Mol %		GPA 2261	09/10/18 11:22 / djb
Propane	< 0.001	Mol %		GPA 2261	09/10/18 11:22 / djb
Isobutane	< 0.001	Mol %		GPA 2261	09/10/18 11:22 / djb
n-Butane	< 0.001	Mol %		GPA 2261	09/10/18 11:22 / djb
Isopentane	< 0.001	Mol %		GPA 2261	09/10/18 11:22 / djb
n-Pentane	0.001	Mol %		GPA 2261	09/10/18 11:22 / djb
Hexanes plus	0.043	Mol %		GPA 2261	09/10/18 11:22 / djb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	09/10/18 11:22 / djb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	09/10/18 11:22 / djb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	09/10/18 11:22 / djb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	09/10/18 11:22 / djb
GPM Isopentane	< 0.0004	gal/MCF		GPA 2261	09/10/18 11:22 / djb
GPM n-Pentane	< 0.0004	gal/MCF		GPA 2261	09/10/18 11:22 / djb
GPM Hexanes plus	0.0190	gal/MCF		GPA 2261	09/10/18 11:22 / djb
GPM Pentanes plus	0.0190	gal/MCF		GPA 2261	09/10/18 11:22 / djb
GPM Total	0.0190	gal/MCF		GPA 2261	09/10/18 11:22 / djb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	09/10/18 11:22 / djb
Calculation Temperature Base	60	°F		GPA 2261	09/10/18 11:22 / djb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	09/10/18 11:22 / djb
Molecular Weight	29.05	unitless		GPA 2261	09/10/18 11:22 / djb
Pseudo-critical Pressure, psia	550	psia		GPA 2261	09/10/18 11:22 / djb
Pseudo-critical Temperature, deg R	242	deg R		GPA 2261	09/10/18 11:22 / djb
Specific Gravity (air=1.000)	1.006	unitless		GPA 2261	09/10/18 11:22 / djb
Gross BTU per cu ft @ std cond, dry	2.26	BTU/cu ft		GPA 2261	09/10/18 11:22 / djb
Gross BTU per cu ft @ std cond, wet	2.22	BTU/cu ft		GPA 2261	09/10/18 11:22 / djb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 09/11/18
Work Order: G18090086

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Analytical Run: R245797
Lab ID: ICV-1809100823	Initial Calibration Verification Standard								09/10/18 08:23
Oxygen	0.388	Mol %	0.001	81	75	110			
Nitrogen	5.000	Mol %	0.001	99	90	110			
Carbon Dioxide	4.921	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.126	Mol %	0.001	125	100	136			
Methane	73.145	Mol %	0.001	100	90	110			
Ethane	5.008	Mol %	0.001	101	90	110			
Propane	5.128	Mol %	0.001	101	90	110			
Isobutane	2.008	Mol %	0.001	99	90	110			
n-Butane	1.986	Mol %	0.001	98	90	110			
Isopentane	0.993	Mol %	0.001	99	90	110			
n-Pentane	0.989	Mol %	0.001	99	90	110			
Hexanes plus	0.308	Mol %	0.001	102	90	110			
Lab ID: CCV-1809100835	Continuing Calibration Verification Standard								09/10/18 08:35
Oxygen	0.590	Mol %	0.001	98	90	110			
Nitrogen	1.307	Mol %	0.001	93	85	110			
Carbon Dioxide	0.965	Mol %	0.001	96	90	110			
Hydrogen Sulfide	0.022	Mol %	0.001	88	70	130			
Methane	93.539	Mol %	0.001	100	90	110			
Ethane	1.025	Mol %	0.001	102	90	110			
Propane	1.010	Mol %	0.001	101	90	110			
Isobutane	0.502	Mol %	0.001	100	90	110			
n-Butane	0.490	Mol %	0.001	98	90	110			
Isopentane	0.200	Mol %	0.001	100	90	110			
n-Pentane	0.197	Mol %	0.001	98	90	110			
Hexanes plus	0.153	Mol %	0.001	101	90	110			
Lab ID: CCV-1809101332	Continuing Calibration Verification Standard								09/10/18 13:33
Oxygen	0.592	Mol %	0.001	98	90	110			
Nitrogen	1.319	Mol %	0.001	94	85	110			
Carbon Dioxide	0.971	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.025	Mol %	0.001	100	70	130			
Methane	93.520	Mol %	0.001	100	90	110			
Ethane	1.022	Mol %	0.001	102	90	110			
Propane	1.006	Mol %	0.001	101	90	110			
Isobutane	0.502	Mol %	0.001	100	90	110			
n-Butane	0.490	Mol %	0.001	98	90	110			
Isopentane	0.200	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.155	Mol %	0.001	102	90	110			
Method: GPA 2261									Batch: R245797

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 09/11/18
Work Order: G18090086

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261								Batch: R245797	
Lab ID: G18090086-001ADUP	Sample Duplicate				Run: Varian GC_180910A			09/10/18 11:27	
Oxygen	20.542	Mol %	0.001				0.0	10	
Nitrogen	78.202	Mol %	0.001				0.0	10	
Carbon Dioxide	1.210	Mol %	0.001				0.2	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	< 0.001	Mol %	0.001					10	
n-Pentane	0.001	Mol %	0.001				0.0	10	
Hexanes plus	0.045	Mol %	0.001				4.5	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1808I67**

12-Sep-18

Client: Williams Four Corners

Project: Florance GCJ 16A

Sample ID **1808i67-001adup**	SampType: **DUP**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **Zone 1 Influent**	Batch ID: **W54084**	RunNo: **54084**
Prep Date:	Analysis Date: **9/11/2018**	SeqNo: **1787221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	5.7	2.0						4.53	20	
Toluene	17	2.0						12.5	20	
Ethylbenzene	2.2	2.0						8.86	20	
Methyl tert-butyl ether (MTBE)	ND	2.0						0	20	
1,2,4-Trimethylbenzene	ND	2.0						0	20	
1,3,5-Trimethylbenzene	ND	2.0						0	20	
1,2-Dichloroethane (EDC)	ND	2.0						0	20	
1,2-Dibromoethane (EDB)	ND	2.0						0	20	
Naphthalene	ND	4.0						0	20	
1-Methylnaphthalene	ND	8.0						0	20	
2-Methylnaphthalene	ND	8.0						0	20	
Acetone	ND	20						0	20	
Bromobenzene	ND	2.0						0	20	
Bromodichloromethane	ND	2.0						0	20	
Bromoform	ND	2.0						0	20	
Bromomethane	ND	4.0						0	20	
2-Butanone	ND	20						0	20	
Carbon disulfide	ND	20						0	20	
Carbon tetrachloride	ND	2.0						0	20	
Chlorobenzene	ND	2.0						0	20	
Chloroethane	ND	4.0						0	20	
Chloroform	ND	2.0						0	20	
Chloromethane	ND	2.0						0	20	
2-Chlorotoluene	ND	2.0						0	20	
4-Chlorotoluene	ND	2.0						0	20	
cis-1,2-DCE	ND	2.0						0	20	
cis-1,3-Dichloropropene	ND	2.0						0	20	
1,2-Dibromo-3-chloropropane	ND	4.0						0	20	
Dibromochloromethane	ND	2.0						0	20	
Dibromomethane	ND	4.0						0	20	
1,2-Dichlorobenzene	ND	2.0						0	20	
1,3-Dichlorobenzene	ND	2.0						0	20	
1,4-Dichlorobenzene	ND	2.0						0	20	
Dichlorodifluoromethane	ND	2.0						0	20	
1,1-Dichloroethane	ND	2.0						0	20	
1,1-Dichloroethene	ND	2.0						0	20	
1,2-Dichloropropane	ND	2.0						0	20	
1,3-Dichloropropane	ND	2.0						0	20	
2,2-Dichloropropane	ND	2.0						0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1808I67**

12-Sep-18

Client: Williams Four Corners
Project: Florance GCJ 16A

Sample ID **1808i67-001adup** SampType: **DUP** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **Zone 1 Influent** Batch ID: **W54084** RunNo: **54084**
Prep Date: Analysis Date: **9/11/2018** SeqNo: **1787221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	2.0						0	20	
Hexachlorobutadiene	ND	2.0						0	20	
2-Hexanone	ND	20						0	20	
Isopropylbenzene	ND	2.0						0	20	
4-Isopropyltoluene	ND	2.0						0	20	
4-Methyl-2-pentanone	ND	20						0	20	
Methylene chloride	ND	6.0						0	20	
n-Butylbenzene	ND	6.0						0	20	
n-Propylbenzene	ND	2.0						0	20	
sec-Butylbenzene	ND	2.0						0	20	
Styrene	ND	2.0						0	20	
tert-Butylbenzene	ND	2.0						0	20	
1,1,1,2-Tetrachloroethane	ND	2.0						0	20	
1,1,2,2-Tetrachloroethane	ND	2.0						0	20	
Tetrachloroethene (PCE)	ND	2.0						0	20	
trans-1,2-DCE	ND	2.0						0	20	
trans-1,3-Dichloropropene	ND	2.0						0	20	
1,2,3-Trichlorobenzene	ND	2.0						0	20	
1,2,4-Trichlorobenzene	ND	2.0						0	20	
1,1,1-Trichloroethane	ND	2.0						0	20	
1,1,2-Trichloroethane	ND	2.0						0	20	
Trichloroethene (TCE)	ND	2.0						0	20	
Trichlorofluoromethane	ND	2.0						0	20	
1,2,3-Trichloropropane	ND	4.0						0	20	
Vinyl chloride	ND	2.0						0	20	
Xylenes, Total	25	3.0						12.6	20	
Surr: Dibromofluoromethane	18		20.00		90.2	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	16		20.00		81.2	70	130	0	0	
Surr: Toluene-d8	21		20.00		104	70	130	0	0	
Surr: 4-Bromofluorobenzene	22		20.00		108	70	130	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **WILLIAMS FOUR CORN** Work Order Number: **1808167** RcptNo: **1**

Received By: **Isaiah Ortiz** **8/31/2018 8:30:00 AM** IO

Completed By: **Ashley Gallegos** **8/31/2018 11:02:39 AM** AG

Reviewed By: ENM 8/31/18 Labeled by: 08/31/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? 08/31/18
Checked by: _____

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.7	Good	Yes			

Chain-of-Custody Record

Client: Williams Four corners

Aaron Gaier

Mailing Address:

Phone #:

email or Fax#: aaron.gaier@williams.com

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

☒ EDD (Type) PDF

Turn-Around Time:

☒ Standard ☐ Rush _____

Project Name: Florance GCJ 16A

Project #:

Project Manager: Aaron Gaier - Williams, Danny Burns - LTE

Sampler: Eric Carroll

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1808-107	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Analysis Request: VOC	O_2	CO_2		Air Bubbles (Y or N)
8/30/18	1500	Air	Zone 1 influent	2 T cellar		-001												X	X	X		

Date:	Time:	Relinquished by:	Received by:	Date	Time
8/30/18	1640			8/30/18	1646
8/30/18	1747	Christian Walker		8/31/2018	0836

Remarks: Please cc: dburns@ltenv.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 14, 2018

Aaron Galer
Williams Four Corners
188 CR 4900
Bloomfield, NM 87413
TEL: (505) 632-4442
FAX

RE: Florance GCJ 16A OrderNo.: 1809446

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/8/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1809446**
Date Reported: **9/14/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1809446-001 **Matrix:** AIR

Client Sample ID: Zone 2 Influent
Collection Date: 9/7/2018 3:20:00 PM
Received Date: 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	28	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Toluene	66	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Ethylbenzene	4.9	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Methyl tert-butyl ether (MTBE)	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,2,4-Trimethylbenzene	2.1	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,3,5-Trimethylbenzene	2.3	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,2-Dichloroethane (EDC)	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,2-Dibromoethane (EDB)	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Naphthalene	ND	4.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1-Methylnaphthalene	ND	8.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
2-Methylnaphthalene	ND	8.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Acetone	ND	20		µg/L	20	9/11/2018 2:55:40 PM	W54084
Bromobenzene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Bromodichloromethane	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Bromoform	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Bromomethane	ND	4.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
2-Butanone	ND	20		µg/L	20	9/11/2018 2:55:40 PM	W54084
Carbon disulfide	ND	20		µg/L	20	9/11/2018 2:55:40 PM	W54084
Carbon tetrachloride	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Chlorobenzene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Chloroethane	ND	4.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Chloroform	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Chloromethane	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
2-Chlorotoluene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
4-Chlorotoluene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
cis-1,2-DCE	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
cis-1,3-Dichloropropene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,2-Dibromo-3-chloropropane	ND	4.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Dibromochloromethane	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Dibromomethane	ND	4.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,2-Dichlorobenzene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,3-Dichlorobenzene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,4-Dichlorobenzene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Dichlorodifluoromethane	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,1-Dichloroethane	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,1-Dichloroethene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,2-Dichloropropane	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,3-Dichloropropane	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
2,2-Dichloropropane	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Williams Four Corners
Project: Florance GCJ 16A
Lab ID: 1809446-001 **Matrix:** AIR

Client Sample ID: Zone 2 Influent
Collection Date: 9/7/2018 3:20:00 PM
Received Date: 9/8/2018 8:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Hexachlorobutadiene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
2-Hexanone	ND	20		µg/L	20	9/11/2018 2:55:40 PM	W54084
Isopropylbenzene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
4-Isopropyltoluene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
4-Methyl-2-pentanone	ND	20		µg/L	20	9/11/2018 2:55:40 PM	W54084
Methylene chloride	11	6.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
n-Butylbenzene	ND	6.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
n-Propylbenzene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
sec-Butylbenzene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Styrene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
tert-Butylbenzene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,1,1,2-Tetrachloroethane	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Tetrachloroethene (PCE)	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
trans-1,2-DCE	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
trans-1,3-Dichloropropene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,2,3-Trichlorobenzene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,2,4-Trichlorobenzene	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,1,1-Trichloroethane	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,1,2-Trichloroethane	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Trichloroethene (TCE)	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Trichlorofluoromethane	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
1,2,3-Trichloropropane	ND	4.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Vinyl chloride	ND	2.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Xylenes, Total	55	3.0		µg/L	20	9/11/2018 2:55:40 PM	W54084
Surr: Dibromofluoromethane	84.7	70-130		%Rec	20	9/11/2018 2:55:40 PM	W54084
Surr: 1,2-Dichloroethane-d4	79.2	70-130		%Rec	20	9/11/2018 2:55:40 PM	W54084
Surr: Toluene-d8	106	70-130		%Rec	20	9/11/2018 2:55:40 PM	W54084
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	20	9/11/2018 2:55:40 PM	W54084

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1809446-001B; Zone 2 Influent
Location:
Lab ID: G18090189-001

Report Date: 09/14/18
Collection Date: 09/07/18 15:20
Date Received: 09/11/18
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	21.175	Mol %		GPA 2261	09/14/18 09:45 / blb
Nitrogen	77.823	Mol %		GPA 2261	09/14/18 09:45 / blb
Carbon Dioxide	0.921	Mol %		GPA 2261	09/14/18 09:45 / blb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	09/14/18 09:45 / blb
Methane	< 0.001	Mol %		GPA 2261	09/14/18 09:45 / blb
Ethane	< 0.001	Mol %		GPA 2261	09/14/18 09:45 / blb
Propane	< 0.001	Mol %		GPA 2261	09/14/18 09:45 / blb
Isobutane	< 0.001	Mol %		GPA 2261	09/14/18 09:45 / blb
n-Butane	0.001	Mol %		GPA 2261	09/14/18 09:45 / blb
Isopentane	0.004	Mol %		GPA 2261	09/14/18 09:45 / blb
n-Pentane	0.004	Mol %		GPA 2261	09/14/18 09:45 / blb
Hexanes plus	0.072	Mol %		GPA 2261	09/14/18 09:45 / blb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	09/14/18 09:45 / blb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	09/14/18 09:45 / blb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	09/14/18 09:45 / blb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	09/14/18 09:45 / blb
GPM Isopentane	0.0010	gal/MCF		GPA 2261	09/14/18 09:45 / blb
GPM n-Pentane	0.0020	gal/MCF		GPA 2261	09/14/18 09:45 / blb
GPM Hexanes plus	0.0310	gal/MCF		GPA 2261	09/14/18 09:45 / blb
GPM Pentanes plus	0.0340	gal/MCF		GPA 2261	09/14/18 09:45 / blb
GPM Total	0.0340	gal/MCF		GPA 2261	09/14/18 09:45 / blb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	09/14/18 09:45 / blb
Calculation Temperature Base	60	°F		GPA 2261	09/14/18 09:45 / blb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	09/14/18 09:45 / blb
Molecular Weight	29.05	unitless		GPA 2261	09/14/18 09:45 / blb
Pseudo-critical Pressure, psia	550	psia		GPA 2261	09/14/18 09:45 / blb
Pseudo-critical Temperature, deg R	242	deg R		GPA 2261	09/14/18 09:45 / blb
Specific Gravity (air=1.000)	1.006	unitless		GPA 2261	09/14/18 09:45 / blb
Gross BTU per cu ft @ std cond, dry	4.02	BTU/cu ft		GPA 2261	09/14/18 09:45 / blb
Gross BTU per cu ft @ std cond, wet	3.95	BTU/cu ft		GPA 2261	09/14/18 09:45 / blb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 09/14/18
Work Order: G18090189

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Analytical Run: R245889
Lab ID: CCV-1809140920	Continuing Calibration Verification Standard								09/14/18 09:21
Oxygen	0.597	Mol %	0.001	99	90	110			
Nitrogen	1.323	Mol %	0.001	94	85	110			
Carbon Dioxide	0.972	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.025	Mol %	0.001	100	70	130			
Methane	93.497	Mol %	0.001	100	90	110			
Ethane	1.027	Mol %	0.001	102	90	110			
Propane	1.012	Mol %	0.001	101	90	110			
Isobutane	0.503	Mol %	0.001	100	90	110			
n-Butane	0.491	Mol %	0.001	98	90	110			
Isopentane	0.200	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.155	Mol %	0.001	102	90	110			
Lab ID: ICV-1809140925	Initial Calibration Verification Standard								09/14/18 09:26
Oxygen	0.396	Mol %	0.001	83	75	110			
Nitrogen	5.013	Mol %	0.001	99	90	110			
Carbon Dioxide	4.928	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.127	Mol %	0.001	126	100	136			
Methane	73.068	Mol %	0.001	100	90	110			
Ethane	5.024	Mol %	0.001	101	90	110			
Propane	5.144	Mol %	0.001	101	90	110			
Isobutane	2.017	Mol %	0.001	100	90	110			
n-Butane	1.993	Mol %	0.001	99	90	110			
Isopentane	0.994	Mol %	0.001	99	90	110			
n-Pentane	0.989	Mol %	0.001	99	90	110			
Hexanes plus	0.307	Mol %	0.001	101	90	110			
Lab ID: CCV-1809141111	Continuing Calibration Verification Standard								09/14/18 11:12
Oxygen	0.583	Mol %	0.001	97	90	110			
Nitrogen	1.299	Mol %	0.001	93	85	110			
Carbon Dioxide	0.981	Mol %	0.001	98	90	110			
Hydrogen Sulfide	0.023	Mol %	0.001	92	70	130			
Methane	93.528	Mol %	0.001	100	90	110			
Ethane	1.028	Mol %	0.001	102	90	110			
Propane	1.010	Mol %	0.001	101	90	110			
Isobutane	0.503	Mol %	0.001	100	90	110			
n-Butane	0.491	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.155	Mol %	0.001	102	90	110			
Method: GPA 2261									Batch: R245889

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 09/14/18
Work Order: G18090189

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									
								Batch: R245889	
Lab ID: G18090189-001ADUP	Sample Duplicate				Run: Varian GC_180914A			09/14/18 09:51	
Oxygen	21.168	Mol %	0.001				0.0	10	
Nitrogen	77.827	Mol %	0.001				0.0	10	
Carbon Dioxide	0.923	Mol %	0.001				0.2	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	0.001	Mol %	0.001					10	
Isopentane	0.004	Mol %	0.001				0.0	10	
n-Pentane	0.004	Mol %	0.001				0.0	10	
Hexanes plus	0.073	Mol %	0.001				0.0	10	
							1.4	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **WILLIAMS FOUR CORN** Work Order Number: **1809446** RcptNo: **1**

Received By: **Erin Melendrez** **9/8/2018 8:15:00 AM**

Completed By: **Ashley Gallegos** **9/10/2018 11:28:19 AM**

Reviewed By: ENM 9/10/18 labeled by: JAB 09/10/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: JAB 09/10/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	NA	Good	Yes			

Chain-of-Custody Record

Client: Williams Four Corners
Aaron Galer

Mailing Address:

Phone #:

email or Fax#: aaron.galer@williams.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Florance GCJ #16A

Project #:

Project Manager: Aaron Galer - Williams
Danny Burns
EC Eric Carroll - LTE

Sampler: Eric Carroll

On Ice: ☐ Yes ☒ No

Sample Temperature: N/A

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1809446	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	VOC's	O_2	CO_2		Air Bubbles (Y or N)
9/7/18	1520	Air	Zone 2 Influent	2 Tedlar		-001												X	X	X		

Date:	Time:	Relinquished by:	Received by:	Date	Time
9/7/18	1045	Eric Carroll	Christ Waalt	9/7/18	1745
9/7/18	1810	Christ Waalt	courier ENM 9/8/18	9/8/18	0815

Remarks: Please cc: dburns@ltenv.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 04, 2018

Danny Burns
Harvest
1755 Arroyo Dr.
Bloomfield, NM 87413
TEL: (505) 632-4475
FAX

RE: Florance

OrderNo.: 1809C65

Dear Danny Burns:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/20/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1809C65**
Date Reported: **10/4/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Harvest
Project: Florance
Lab ID: 1809C65-001 **Matrix:** AIR

Client Sample ID: Zone 3 Influent
Collection Date: 9/19/2018 3:30:00 PM
Received Date: 9/20/2018 8:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	4.1	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Toluene	42	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Ethylbenzene	1.4	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Methyl tert-butyl ether (MTBE)	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,2,4-Trimethylbenzene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,3,5-Trimethylbenzene	0.55	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Naphthalene	ND	1.0		µg/L	5	10/2/2018 1:09:00 PM	R54583
1-Methylnaphthalene	ND	2.0		µg/L	5	10/2/2018 1:09:00 PM	R54583
2-Methylnaphthalene	ND	2.0		µg/L	5	10/2/2018 1:09:00 PM	R54583
Acetone	ND	5.0		µg/L	5	10/2/2018 1:09:00 PM	R54583
Bromobenzene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Bromodichloromethane	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Bromoform	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Bromomethane	ND	1.0		µg/L	5	10/2/2018 1:09:00 PM	R54583
2-Butanone	ND	5.0		µg/L	5	10/2/2018 1:09:00 PM	R54583
Carbon disulfide	ND	5.0		µg/L	5	10/2/2018 1:09:00 PM	R54583
Carbon tetrachloride	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Chlorobenzene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Chloroethane	ND	1.0		µg/L	5	10/2/2018 1:09:00 PM	R54583
Chloroform	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Chloromethane	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
2-Chlorotoluene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
4-Chlorotoluene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
cis-1,2-DCE	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
cis-1,3-Dichloropropene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,2-Dibromo-3-chloropropane	ND	1.0		µg/L	5	10/2/2018 1:09:00 PM	R54583
Dibromochloromethane	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Dibromomethane	ND	1.0		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,2-Dichlorobenzene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,3-Dichlorobenzene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,4-Dichlorobenzene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Dichlorodifluoromethane	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,1-Dichloroethane	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,1-Dichloroethene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,2-Dichloropropane	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,3-Dichloropropane	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
2,2-Dichloropropane	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Harvest
Project: Florance
Lab ID: 1809C65-001 **Matrix:** AIR

Client Sample ID: Zone 3 Influent
Collection Date: 9/19/2018 3:30:00 PM
Received Date: 9/20/2018 8:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,1-Dichloropropene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Hexachlorobutadiene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
2-Hexanone	ND	5.0		µg/L	5	10/2/2018 1:09:00 PM	R54583
Isopropylbenzene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
4-Isopropyltoluene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
4-Methyl-2-pentanone	ND	5.0		µg/L	5	10/2/2018 1:09:00 PM	R54583
Methylene chloride	ND	1.5		µg/L	5	10/2/2018 1:09:00 PM	R54583
n-Butylbenzene	ND	1.5		µg/L	5	10/2/2018 1:09:00 PM	R54583
n-Propylbenzene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
sec-Butylbenzene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Styrene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
tert-Butylbenzene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Tetrachloroethene (PCE)	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
trans-1,2-DCE	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
trans-1,3-Dichloropropene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,2,3-Trichlorobenzene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,2,4-Trichlorobenzene	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,1,1-Trichloroethane	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,1,2-Trichloroethane	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Trichloroethene (TCE)	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Trichlorofluoromethane	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
1,2,3-Trichloropropane	ND	1.0		µg/L	5	10/2/2018 1:09:00 PM	R54583
Vinyl chloride	ND	0.50		µg/L	5	10/2/2018 1:09:00 PM	R54583
Xylenes, Total	24	0.75		µg/L	5	10/2/2018 1:09:00 PM	R54583
Surr: Dibromofluoromethane	95.9	70-130		%Rec	5	10/2/2018 1:09:00 PM	R54583
Surr: 1,2-Dichloroethane-d4	94.3	70-130		%Rec	5	10/2/2018 1:09:00 PM	R54583
Surr: Toluene-d8	119	70-130		%Rec	5	10/2/2018 1:09:00 PM	R54583
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	5	10/2/2018 1:09:00 PM	R54583

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1809C65-001B; Zone 3 Influent
Location:
Lab ID: G18090427-001

Report Date: 10/02/18
Collection Date: 09/19/18 15:30
Date Received: 09/25/18
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	22.476	Mol %		GPA 2261	10/02/18 09:30 / blb
Nitrogen	77.426	Mol %		GPA 2261	10/02/18 09:30 / blb
Carbon Dioxide	0.087	Mol %		GPA 2261	10/02/18 09:30 / blb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	10/02/18 09:30 / blb
Methane	< 0.001	Mol %		GPA 2261	10/02/18 09:30 / blb
Ethane	< 0.001	Mol %		GPA 2261	10/02/18 09:30 / blb
Propane	< 0.001	Mol %		GPA 2261	10/02/18 09:30 / blb
Isobutane	< 0.001	Mol %		GPA 2261	10/02/18 09:30 / blb
n-Butane	< 0.001	Mol %		GPA 2261	10/02/18 09:30 / blb
Isopentane	< 0.001	Mol %		GPA 2261	10/02/18 09:30 / blb
n-Pentane	< 0.001	Mol %		GPA 2261	10/02/18 09:30 / blb
Hexanes plus	0.011	Mol %		GPA 2261	10/02/18 09:30 / blb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	10/02/18 09:30 / blb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	10/02/18 09:30 / blb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	10/02/18 09:30 / blb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	10/02/18 09:30 / blb
GPM Isopentane	< 0.0004	gal/MCF		GPA 2261	10/02/18 09:30 / blb
GPM n-Pentane	< 0.0004	gal/MCF		GPA 2261	10/02/18 09:30 / blb
GPM Hexanes plus	0.0050	gal/MCF		GPA 2261	10/02/18 09:30 / blb
GPM Pentanes plus	0.0050	gal/MCF		GPA 2261	10/02/18 09:30 / blb
GPM Total	0.0050	gal/MCF		GPA 2261	10/02/18 09:30 / blb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	10/02/18 09:30 / blb
Calculation Temperature Base	60	°F		GPA 2261	10/02/18 09:30 / blb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	10/02/18 09:30 / blb
Molecular Weight	28.93	unitless		GPA 2261	10/02/18 09:30 / blb
Pseudo-critical Pressure, psia	548	psia		GPA 2261	10/02/18 09:30 / blb
Pseudo-critical Temperature, deg R	240	deg R		GPA 2261	10/02/18 09:30 / blb
Specific Gravity (air=1.000)	1.002	unitless		GPA 2261	10/02/18 09:30 / blb
Gross BTU per cu ft @ std cond, dry	0.58	BTU/cu ft		GPA 2261	10/02/18 09:30 / blb
Gross BTU per cu ft @ std cond, wet	0.57	BTU/cu ft		GPA 2261	10/02/18 09:30 / blb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 10/02/18
Work Order: G18090427

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Analytical Run: R246350
Lab ID: ICV-1810020902	Initial Calibration Verification Standard								10/02/18 09:03
Oxygen	0.386	Mol %	0.001	81	75	110			
Nitrogen	5.044	Mol %	0.001	100	90	110			
Carbon Dioxide	4.919	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.125	Mol %	0.001	124	100	136			
Methane	73.066	Mol %	0.001	100	90	110			
Ethane	5.021	Mol %	0.001	101	90	110			
Propane	5.137	Mol %	0.001	101	90	110			
Isobutane	2.019	Mol %	0.001	100	90	110			
n-Butane	1.999	Mol %	0.001	99	90	110			
Isopentane	0.993	Mol %	0.001	99	90	110			
n-Pentane	0.986	Mol %	0.001	99	90	110			
Hexanes plus	0.305	Mol %	0.001	101	90	110			
Lab ID: CCV-1810020908	Continuing Calibration Verification Standard								10/02/18 09:08
Oxygen	0.582	Mol %	0.001	97	90	110			
Nitrogen	1.327	Mol %	0.001	95	85	110			
Carbon Dioxide	0.966	Mol %	0.001	96	90	110			
Hydrogen Sulfide	0.024	Mol %	0.001	96	70	130			
Methane	93.515	Mol %	0.001	100	90	110			
Ethane	1.026	Mol %	0.001	102	90	110			
Propane	1.012	Mol %	0.001	101	90	110			
Isobutane	0.504	Mol %	0.001	101	90	110			
n-Butane	0.491	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.154	Mol %	0.001	102	90	110			
Lab ID: CCV-1810021053	Continuing Calibration Verification Standard								10/02/18 10:54
Oxygen	0.578	Mol %	0.001	96	90	110			
Nitrogen	1.295	Mol %	0.001	92	85	110			
Carbon Dioxide	0.978	Mol %	0.001	98	90	110			
Hydrogen Sulfide	0.024	Mol %	0.001	96	70	130			
Methane	93.534	Mol %	0.001	100	90	110			
Ethane	1.032	Mol %	0.001	103	90	110			
Propane	1.011	Mol %	0.001	101	90	110			
Isobutane	0.507	Mol %	0.001	101	90	110			
n-Butane	0.490	Mol %	0.001	98	90	110			
Isopentane	0.200	Mol %	0.001	100	90	110			
n-Pentane	0.197	Mol %	0.001	98	90	110			
Hexanes plus	0.154	Mol %	0.001	102	90	110			
Method: GPA 2261									Batch: R246350

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 10/02/18
Work Order: G18090427

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Batch: R246350
Lab ID: G18090427-001ADUP	Sample Duplicate				Run: Varian GC_181002A				10/02/18 09:36
Oxygen	22.473	Mol %	0.001				0.0	10	
Nitrogen	77.427	Mol %	0.001				0.0	10	
Carbon Dioxide	0.088	Mol %	0.001				1.1	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	< 0.001	Mol %	0.001					10	
n-Pentane	< 0.001	Mol %	0.001					10	
Hexanes plus	0.012	Mol %	0.001				8.7	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **WILLIAMS FOUR CORN** Work Order Number: **1809C65** RcptNo: **1**

Received By: **Jazzmine Burkhead** **9/20/2018 8:30:00 AM** Jazzmine Burkhead

Completed By: **Ashley Gallegos** **9/20/2018 6:00:50 PM** AG

Reviewed By: VW 09/24/18 Labeled by: ENM 9/24/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☐	NA ☑
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

ENM 9/24/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified:		Date	
By Whom:		Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person	
Regarding:			
Client Instructions:			

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	NA	Good	Yes			

Chain-of-Custody Record

Client: Williams Four corners

Aaron Galer

Mailing Address:

Phone #:

email or Fax#: aaron.galer@williams.com

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☒ EDD (Type) PDF

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: Florance

Project #:

Project Manager: Aaron Galer - Williams, Danny Burns - LTE

Sampler: Eric Carroll

On Ice: ☐ Yes ☒ No

Sample Temperature: See remarks

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1809C66	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	8260 Full VOC	O_2	CO_2		Air Bubbles (Y or N)
9-19	1530	Air	Zone 3 influent	2 Tedlar	None	-001												X	X	X		

Date:	Time:	Relinquished by:	Received by:	Date	Time
9-19	1600	[signature]	[signature]	9/19/18	1600
9/19/18	1840	[signature]	[signature]	09/20/18	08:30

Remarks:
Please CC: dburns@ltenv.com
Temp+5.3 - 0.9 (CF) = 14.4
Courier

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 09, 2018

Aaron Galer
Harvest
1755 Arroyo Dr.
Bloomfield, NM 87413
TEL: (505) 632-4475
FAX

RE: Florance OrderNo.: 1809H39

Dear Aaron Galer:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/28/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1809H39**
Date Reported: **10/9/2018**

CLIENT: Harvest
Project: Florance
Lab ID: 1809H39-001 **Matrix:** AIR

Client Sample ID: Zone 4 Influent
Collection Date: 9/27/2018 3:30:00 PM
Received Date: 9/28/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	17	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Toluene	71	2.0		µg/L	20	10/1/2018 1:22:00 PM	R54556
Ethylbenzene	4.8	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Methyl tert-butyl ether (MTBE)	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,2,4-Trimethylbenzene	2.2	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,3,5-Trimethylbenzene	2.3	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Naphthalene	ND	1.0		µg/L	5	10/2/2018 1:33:00 PM	R54583
1-Methylnaphthalene	ND	2.0		µg/L	5	10/2/2018 1:33:00 PM	R54583
2-Methylnaphthalene	ND	2.0		µg/L	5	10/2/2018 1:33:00 PM	R54583
Acetone	ND	5.0		µg/L	5	10/2/2018 1:33:00 PM	R54583
Bromobenzene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Bromodichloromethane	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Bromoform	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Bromomethane	ND	1.0		µg/L	5	10/2/2018 1:33:00 PM	R54583
2-Butanone	ND	5.0		µg/L	5	10/2/2018 1:33:00 PM	R54583
Carbon disulfide	ND	5.0		µg/L	5	10/2/2018 1:33:00 PM	R54583
Carbon tetrachloride	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Chlorobenzene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Chloroethane	ND	1.0		µg/L	5	10/2/2018 1:33:00 PM	R54583
Chloroform	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Chloromethane	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
2-Chlorotoluene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
4-Chlorotoluene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
cis-1,2-DCE	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
cis-1,3-Dichloropropene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,2-Dibromo-3-chloropropane	ND	1.0		µg/L	5	10/2/2018 1:33:00 PM	R54583
Dibromochloromethane	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Dibromomethane	ND	1.0		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,2-Dichlorobenzene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,3-Dichlorobenzene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,4-Dichlorobenzene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Dichlorodifluoromethane	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,1-Dichloroethane	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,1-Dichloroethene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,2-Dichloropropane	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,3-Dichloropropane	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
2,2-Dichloropropane	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Harvest
Project: Florance
Lab ID: 1809H39-001 **Matrix:** AIR

Client Sample ID: Zone 4 Influent
Collection Date: 9/27/2018 3:30:00 PM
Received Date: 9/28/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,1-Dichloropropene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Hexachlorobutadiene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
2-Hexanone	ND	5.0		µg/L	5	10/2/2018 1:33:00 PM	R54583
Isopropylbenzene	0.66	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
4-Isopropyltoluene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
4-Methyl-2-pentanone	ND	5.0		µg/L	5	10/2/2018 1:33:00 PM	R54583
Methylene chloride	ND	1.5		µg/L	5	10/2/2018 1:33:00 PM	R54583
n-Butylbenzene	ND	1.5		µg/L	5	10/2/2018 1:33:00 PM	R54583
n-Propylbenzene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
sec-Butylbenzene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Styrene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
tert-Butylbenzene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Tetrachloroethene (PCE)	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
trans-1,2-DCE	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
trans-1,3-Dichloropropene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,2,3-Trichlorobenzene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,2,4-Trichlorobenzene	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,1,1-Trichloroethane	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,1,2-Trichloroethane	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Trichloroethene (TCE)	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Trichlorofluoromethane	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
1,2,3-Trichloropropane	ND	1.0		µg/L	5	10/2/2018 1:33:00 PM	R54583
Vinyl chloride	ND	0.50		µg/L	5	10/2/2018 1:33:00 PM	R54583
Xylenes, Total	62	0.75		µg/L	5	10/2/2018 1:33:00 PM	R54583
Surr: Dibromofluoromethane	96.5	70-130		%Rec	5	10/2/2018 1:33:00 PM	R54583
Surr: 1,2-Dichloroethane-d4	95.0	70-130		%Rec	5	10/2/2018 1:33:00 PM	R54583
Surr: Toluene-d8	109	70-130		%Rec	5	10/2/2018 1:33:00 PM	R54583
Surr: 4-Bromofluorobenzene	96.9	70-130		%Rec	5	10/2/2018 1:33:00 PM	R54583

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project:
Client Sample ID: 1809H39-001B; Zone 4 Influent
Location:
Lab ID: G18100063-001

Report Date: 10/08/18
Collection Date: 09/27/18 15:30
Date Received: 10/02/18
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	21.532	Mol %		GPA 2261	10/05/18 14:46 / djb
Nitrogen	77.833	Mol %		GPA 2261	10/05/18 14:46 / djb
Carbon Dioxide	0.568	Mol %		GPA 2261	10/05/18 14:46 / djb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	10/05/18 14:46 / djb
Methane	< 0.001	Mol %		GPA 2261	10/05/18 14:46 / djb
Ethane	< 0.001	Mol %		GPA 2261	10/05/18 14:46 / djb
Propane	< 0.001	Mol %		GPA 2261	10/05/18 14:46 / djb
Isobutane	< 0.001	Mol %		GPA 2261	10/05/18 14:46 / djb
n-Butane	< 0.001	Mol %		GPA 2261	10/05/18 14:46 / djb
Isopentane	0.002	Mol %		GPA 2261	10/05/18 14:46 / djb
n-Pentane	0.002	Mol %		GPA 2261	10/05/18 14:46 / djb
Hexanes plus	0.063	Mol %		GPA 2261	10/05/18 14:46 / djb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	10/05/18 14:46 / djb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	10/05/18 14:46 / djb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	10/05/18 14:46 / djb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	10/05/18 14:46 / djb
GPM Isopentane	0.0010	gal/MCF		GPA 2261	10/05/18 14:46 / djb
GPM n-Pentane	0.0010	gal/MCF		GPA 2261	10/05/18 14:46 / djb
GPM Hexanes plus	0.0270	gal/MCF		GPA 2261	10/05/18 14:46 / djb
GPM Pentanes plus	0.0290	gal/MCF		GPA 2261	10/05/18 14:46 / djb
GPM Total	0.0290	gal/MCF		GPA 2261	10/05/18 14:46 / djb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	10/05/18 14:46 / djb
Calculation Temperature Base	60	°F		GPA 2261	10/05/18 14:46 / djb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	10/05/18 14:46 / djb
Molecular Weight	29.00	unitless		GPA 2261	10/05/18 14:46 / djb
Pseudo-critical Pressure, psia	548	psia		GPA 2261	10/05/18 14:46 / djb
Pseudo-critical Temperature, deg R	241	deg R		GPA 2261	10/05/18 14:46 / djb
Specific Gravity (air=1.000)	1.004	unitless		GPA 2261	10/05/18 14:46 / djb
Gross BTU per cu ft @ std cond, dry	3.37	BTU/cu ft		GPA 2261	10/05/18 14:46 / djb
Gross BTU per cu ft @ std cond, wet	3.31	BTU/cu ft		GPA 2261	10/05/18 14:46 / djb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project:

Report Date: 10/08/18
Work Order: G18100063

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261									Analytical Run: R246455
Lab ID: CCV-1810051009	Continuing Calibration Verification Standard								10/05/18 10:10
Oxygen	0.557	Mol %	0.001	93	90	110			
Nitrogen	1.290	Mol %	0.001	92	85	110			
Carbon Dioxide	0.973	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.020	Mol %	0.001	80	70	130			
Methane	93.574	Mol %	0.001	100	90	110			
Ethane	1.024	Mol %	0.001	102	90	110			
Propane	1.010	Mol %	0.001	101	90	110			
Isobutane	0.505	Mol %	0.001	101	90	110			
n-Butane	0.492	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.199	Mol %	0.001	99	90	110			
Hexanes plus	0.155	Mol %	0.001	102	90	110			
Lab ID: ICV-1810051017	Initial Calibration Verification Standard								10/05/18 10:17
Oxygen	0.383	Mol %	0.001	80	75	110			
Nitrogen	4.984	Mol %	0.001	99	90	110			
Carbon Dioxide	4.921	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.125	Mol %	0.001	124	100	136			
Methane	73.116	Mol %	0.001	100	90	110			
Ethane	5.012	Mol %	0.001	101	90	110			
Propane	5.134	Mol %	0.001	101	90	110			
Isobutane	2.023	Mol %	0.001	100	90	110			
n-Butane	2.001	Mol %	0.001	99	90	110			
Isopentane	0.999	Mol %	0.001	100	90	110			
n-Pentane	0.994	Mol %	0.001	99	90	110			
Hexanes plus	0.308	Mol %	0.001	102	90	110			
Lab ID: CCV-1810051625	Continuing Calibration Verification Standard								10/05/18 16:25
Oxygen	0.582	Mol %	0.001	97	90	110			
Nitrogen	1.288	Mol %	0.001	92	85	110			
Carbon Dioxide	0.970	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.021	Mol %	0.001	84	70	130			
Methane	93.555	Mol %	0.001	100	90	110			
Ethane	1.025	Mol %	0.001	102	90	110			
Propane	1.012	Mol %	0.001	101	90	110			
Isobutane	0.503	Mol %	0.001	100	90	110			
n-Butane	0.491	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.154	Mol %	0.001	102	90	110			
Method: GPA 2261									Batch: R246455

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project:

Report Date: 10/08/18
Work Order: G18100063

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261								Batch: R246455	
Lab ID: G18100063-001ADUP	Sample Duplicate				Run: Varian GC_181005A			10/05/18 14:52	
Oxygen	21.533	Mol %	0.001				0.0	10	
Nitrogen	77.830	Mol %	0.001				0.0	10	
Carbon Dioxide	0.569	Mol %	0.001				0.2	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	0.002	Mol %	0.001				0.0	10	
n-Pentane	0.002	Mol %	0.001				0.0	10	
Hexanes plus	0.064	Mol %	0.001				1.6	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **WILLIAMS FOUR CORN** Work Order Number: **1809H39** RcptNo: **1**

Received By: **Anne Thorne** **9/28/2018 8:40:00 AM** Anne Thorne

Completed By: **Ashley Gallegos** **9/28/2018 11:37:00 AM** AG

Reviewed By: JAB 09/28/18 labeled by: JG 9/28/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☐	NA ☑
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: JG 9.28.18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	NA	Good	Yes			

Chain-of-Custody Record

Client: Williams Four Corners
Aaron Galer
Mailing Address:
Phone #:
email or Fax#: aaron.galer@williams.com
QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☑ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Florance
Project #:
Project Manager: Aaron Galer- Williams
Danny Burns- LTF
Sampler:
On Ice: ☒ Yes ☐ No
Sample Temperature: 5.8°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1809139	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	8260 VOC's	CO2	O2		Air Bubbles (Y or N)
9/27	1530	Air	Zone 4 Influent	2 Tedlar	None	-001												X	X	X		

Analysis Request

Date: 9/27 Time: 1700 Relinquished by:
Received by: Date Time 9/27/18 1700

Date: 9/27/18 Time: 1824 Relinquished by:
Received by: Date Time 09/28/18 0848

Remarks: Please cc: dburns@ltenv.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.